

THE DENTAL DIGEST



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Balanced Occlusion in Relation to Partial Denture Construction*

By Clyde H. Schuyler, D.D.S., New York, N. Y.

The preservation of the teeth and of their supporting structures should be the first precept of every practicing dentist. It is not enough for the partial-denture worker that he fill the spaces where natural teeth have been lost. He must not disregard the possibility of introducing etiologic factors of dental and periodontal disease coincidentally with the insertion of the prosthetic appliance.

The present is a period of very rapid advancement in the field of prosthetic dentistry. Successful dental restoration demands of the

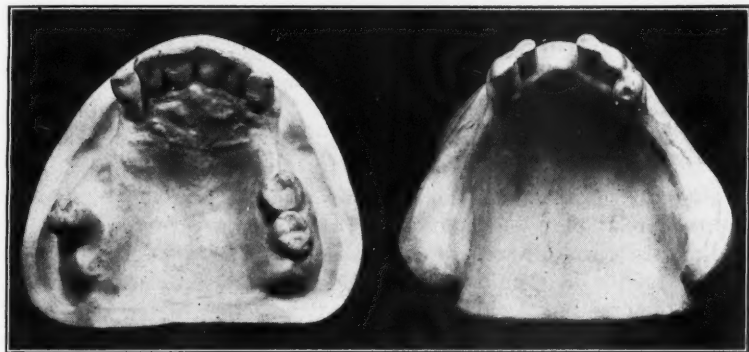


Fig. 1

Occlusal view of a typical mandibular and maxillary case needing partial restorations.

dentist a consideration of every associated structure of the teeth, as well as of the teeth themselves. It requires not only careful planning of the strictly mechanical factors involved in the construction of the appliance, but a study as to the possible results which may arise because of the presence of the appliance in the mouth of a living individual.

A careful diagnosis of every essential condition of disease should

* From a clinic before the First District Society, New York, December 8, 1926.

be made at the beginning of each case, and a study of the mandible and maxilla as units, and then also in their relation to each other. Such investigations will naturally lead to a consideration of deformities or a loss of normal relation between the mandible and maxilla, congestion and other pathologic conditions in the throat, defects of hearing and the metastatic sequelae of any condition of oral disease as it may be related to the general health of the patient.

Not every partial-denture worker gives sufficient study to the design of the appliance. To make such partial restorations as will be acceptable to the living human organism requires not only the highest degree of artisanship and experience, but a profound biologic sense. We as partial-denture workers must cultivate the creative mind of the artist and the accuracy of the engineer. No two cases have the same requirements. Each case must be studied and designed according to its needs.

Much investing-tissue damage is done to the natural teeth by reason of occlusal trauma produced by partial restorations. This indictment is meant to include *both* removable and fixed bridgework. Perhaps the greatest factor in the production of trauma has been the partial denture as it has been constructed in the years just past.

One of the most dangerous pitfalls in reconstruction is found in the occlusion of the remaining natural teeth. We are all too prone to accept the remaining natural teeth as we find them, without giving thought to the fact that their forms may be modified by grinding or building up the occlusal and incisal surfaces, producing harmony in function and, where possible, greater harmony of the features of the patient.

Careful consideration should be given to the length of the cusps (in their relation to the depth of the sulcus groove) of those bicuspid and molars that are to remain and be associated with the finished partial denture. Frequently I find that the remaining natural teeth are entirely out of functional harmony with each other. How, then, can one expect harmony in the occlusal relation when the finished partial restoration is inserted?

We must not forget that co-ordination of jaw with jaw and tooth with tooth is fundamentally essential for biologic harmony in function. The cells of the investing-structure tissue will not proliferate and be replaced while the harmony of the occlusal relation is in disbalance. Stillman has described this disharmony of tooth relation as *traumatic occlusion* and has defined it as "an abnormal occlusal stress which is capable of producing, or has produced, an injury to the periodontium. It is the most common cause of interference with circulation in the periodontal tissues, with consequent lowering of resistance in this area, pocket formation and resorption of the alveolar process, followed by bacterial invasion." These conditions may result from too

deep or interlocking cusps, uneven wear of occlusal surfaces, migration or elongation of teeth after extraction, or a closing of the mandibular relations. In partial prosthetic restorations it seems that these conditions have little consideration.

There has been comparatively little thought given to elongated teeth or teeth out of position in the arch. Many restorations are constructed with improper or irregular occlusal planes, owing to these elongated natural teeth. The impossibility of producing balanced occlusion in such cases results in trauma of the investing tissues, with further loosening and loss of teeth. In some cases this condition may be relieved by opening the jaw relation and re-establishing the occlusal plane during construction. In other cases, where opening the jaw relation is not practicable or advisable, relief may be accomplished by grinding the cusps of the elongated tooth. However, in every case where elongation of a tooth *prohibits* balanced occlusal relations, it should be extracted. Abscessed teeth are removed because they are incompatible with the physical welfare of the patient, yet we frequently tolerate these uncorrected conditions or fail to recognize them as incompatible with the success of our work or the welfare of the patient.

To eliminate the possibility of traumatic occlusion by elongation and migration (whether one tooth or more), spaces should be filled soon after extraction. In the past it has been considered questionable practice to supply, for instance, a missing first molar when both adjoining teeth were in sound condition. Where gold shell crowns and unsanitary shelf-like bridges were used, perhaps it was poor practice, but with gold castings as abutments for sanitary porcelain-tipped bridges or removable bridges of our present types of construction it is good practice. It not only increases masticating efficiency, but eliminates the possibility of the migration of teeth in that arch where the tooth was extracted; it also prevents elongation of teeth in the opposing arch, both so frequently factors resulting in periodontal disease and the consequent loss of teeth in both arches.

Care should be used in the selection of the porcelain teeth for the restoration. Cusps that harmonize in depth with the remaining natural teeth are an essential in many restorations. Teeth having too deep cusps are frequently selected. Such tooth forms produce a locked occlusion, with consequent strain on the abutment teeth.

Natural teeth with most of their occlusal ridges worn away will crush and masticate a bolus of food to greater advantage than will artificial teeth ground comparatively flat. Much care should be used that the ridges and sulci, which are so essential in mastication, may be retained.

In cases where all of the posterior teeth are to be replaced the length or height of the cusp should be determined by the inclination of the

condyle path, the incisal guidance and the lateral range of the mandible. The teeth should always be so arranged as to maintain a contact with their antagonists, yet avoid excessive stress upon the points of interference when gliding from one occlusal position to another.

Much thought has been given in the past few years to occluding instruments—the idealized articulator. Dentistry has been divided into two classes through the introduction of new instruments. In one class are those who hold that the cusps of the teeth control and guide mandibular movements; in the other, those who believe that teeth should be set in relation to the individual's mandibular movements. Those in the former group, for obvious reasons, do not use an instrument adjustable to the individual, but construct their cases to a preconceived ideal. Followers of this school are very rapidly decreasing, and today most



Fig. 2

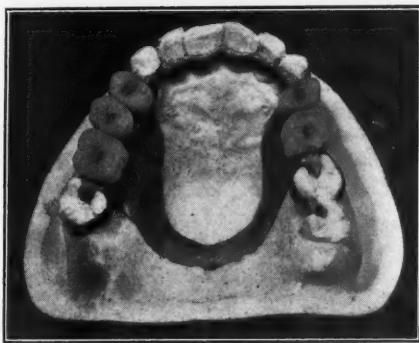
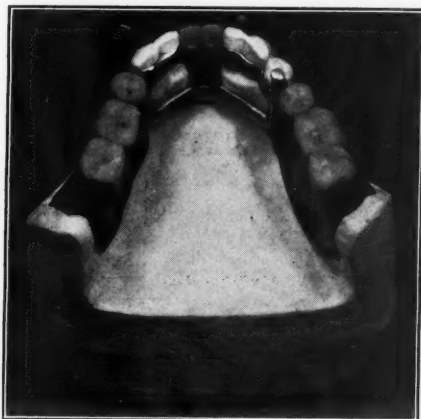
Lateral view of a mandibular case with the usual narrow, high ridges in the area of the bicusps, and broad ridges in the area of the molars, where there is less tendency toward absorption.

of our prosthodontists recognize the necessity of an adaptable instrument.

It is safe to say that our greatest hardship in the field of partial-denture work is not to obtain balanced occlusion, but to retain this harmony in function over an unlimited period of time.

Consideration must be given to tissues, which differ much in character. As abutments and working in functional co-ordination with our artificial restorations, the natural teeth are hard in texture, but slightly movable under masticatory pressure or lateral stress and normally subject to little change over a period of time. For retention of harmony in function our restorations must possess similar qualities as nearly as possible.

Perhaps insufficient thought has been given to the virtues of the more rigid tooth-bearing or semi-tooth-bearing partial dentures as compared to the cases constructed upon resilient or often spongy tissues supported by a bony structure which is subject to rapid absorption and change under pressure. We have thought much of the preservation of the teeth and in so doing have often neglected to give proper consideration to their supporting structures or to the preservation of the alveolar



Figs. 3 and 4

The type of construction used with the continuous clasp. The maxillary case is entirely tooth-bearing. The mandibular case is semi-tooth-bearing, support being given in the anterior part, where the greatest and most rapid absorption will occur.

ridges, with the thought of greater comfort in wearing the possible full denture.

We have constructed many partial restorations without occlusal

rests or supports on the remaining teeth, thinking that by so eliminating them from greater occlusal stress their retention would be materially prolonged. This is true in many cases where the alveolar ridges are broad and firm and where sufficiently large saddles can be used, while in others less favorable the alveolar process absorbs rapidly, resulting in a weakening of the structures supporting the abutment teeth. This, combined with the loss of balanced occlusion or trauma, causes a much more serious complication than would have resulted had the more rigid tooth-bearing or semi-tooth-bearing appliance been used. Of the two types the tissue-bearing might readily have produced the premature loss of the remaining teeth.

That time when patients may be faced with the problem of wearing full dentures must be given due consideration. Poorly constructed and inefficient tissue-bearing restorations may have caused such injury or loss of the supporting alveolar process that it is difficult or nearly impossible to make efficient full dentures.

Edward Kennedy and Woodworth have taught us how to construct tooth-bearing or semi-tooth-bearing restorations with the continuous clasp placing the support upon the greatest possible number of teeth. They are to be highly commended for this contribution to the profession and to the public. Appliances constructed under these principles support the teeth against lateral strain, retain balanced occlusion, produce the least injury to the alveolar ridges and gingival tissues, and while the teeth take much of the load of occlusion, they invariably remain firm and healthy for a longer period of time and the dentures are unquestionably more efficient.

Much has been said against the use of clasps by advocates of removable restorations of the Chayes type, and all forms of outside attachments which change the tooth contour have been condemned. Most efficient restorations have been made by the use of the slot attachment used in inlays, and I am a strong advocate of them in many cases, but wherein lies the secret of their success? I feel that this success is not in the fact that tooth contour is not changed, and that they have the qualities of tissue-bearing appliances. They are primarily tooth-bearing, and as such retain balanced occlusion. They conform more nearly to our ideals of a restoration where the stress of occlusion is carried by the teeth, balanced occlusion retained, and the abutment teeth stabilized from lateral strain. It is my thought, however, that the occlusal stress should be carried by the greatest possible number of teeth, that the load on each may be minimized, and that the remaining teeth may be stabilized by giving them support against lateral movement. This in many instances would appear to indicate the use of the continuous clasp.

In partial denture construction we require the accurate adaptation of the saddles. We require accuracy in the relation between

saddles and anchorages, and most of all, a balanced and innocuous occlusal relation, which must be accompanied in partial denture work by the construction of the tooth-bearing denture or by the periodic rebasing of the tissue- or semi-tissue-bearing dentures. To simplify the rebasing of these dentures, I prefer to construct the saddles of vulcanite, using gold arch bars and gold lingual bars.

Let us strive for the development of the art and science of partial denture construction. I am sure we all concur that traumatic occlusion and its prevention, together with correction of the dentures (natural or artificial) to an occlusal balance, play an important part in every dental operation. It therefore behooves all of us to give the problem careful study, unbiased investigation and serious thought, whether restoring the symmetry of individual natural teeth or the porcelains which are put on bridges or partial dentures.

576 Fifth Avenue.



[ONE REASON FOR SUCCESS]

People who have accomplished work worthwhile have had a very high sense of the way to do things. They have not been content with mediocrity. They have not confined themselves to the beaten path. They have never been satisfied to do things just as others do them—but always a little better. They always pushed things that came into their hands a little higher up, a little farther on. It is this little higher up—this little farther on that counts in the quality of Life's work. It is the constant effort to be first class in everything one attempts, that conquers the heights of excellence.

—WAGNER.

Prosthodontia as a Fine Art

By **B. L. Hooper, D.D.S., Lincoln Nebraska**

Chairman of Prosthetics, University of Nebraska

(Continued from October)

The four large pictures following are more easily interpreted. Fig. 14 shows natural teeth in central occlusion, with the lips separated as far as possible, and records the size of the teeth, form, alignment, the



Fig. 14

Record photograph—showing central occlusion.

individual characteristics and peculiarities. Fig. 15 shows the teeth with the jaws slightly apart, giving the incisal edge record. Remember that these last two illustrations, as well as the next two, are taken from

negatives that are exactly life-size, so that comparisons may be easily made during the construction of the dentures.

The overjet and labial pitch of the natural teeth in central occlusion are recorded in Fig. 16. The last of the series (Fig. 17) is the profile, with lips at rest. This is perhaps the most important picture of the series. It is from this negative that we obtain what we have termed the *prosthogram*. A print from Fig. 17 is cut out along the profile, the part on the right being retained as the prosthogram (Fig. 18), which is used as a measurement in restoring the natural profile. When the

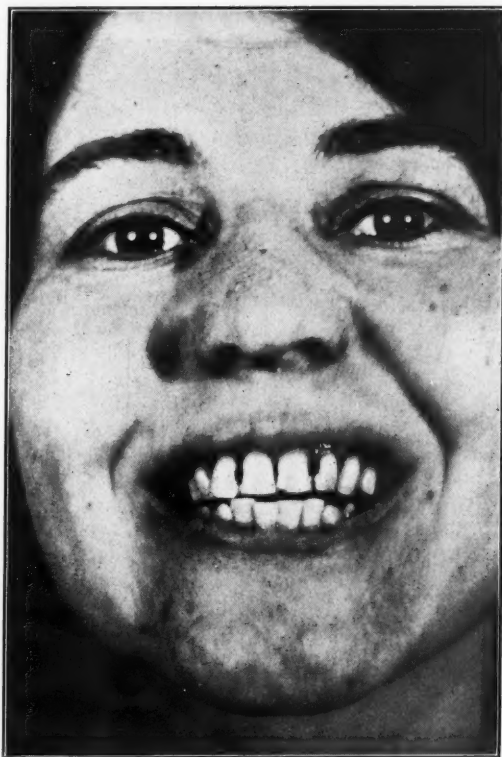


Fig. 15

Record photograph—showing incisal edge.

trial dentures are being fitted, this prosthogram is tried on, as shown in Fig. 19, and changes are made in the dentures until the correct profile is reached.

When it is possible to get these records before the natural teeth are removed, the success of dentures as well as the esthetic results is very gratifying to both the patient and the operator. Such a record is equally valuable in correcting loss of expression, due to natural resorption of the process. Resorption takes place so slowly that often there is a considerable change in features before the patient or his family realize it. Often such change is unnoticed entirely, but usually it is progressing slowly just the same. Resorption of the process means loss of facial expression and loss of efficiency in mastication as well, so it should be watched for and corrected at frequent intervals.



Fig. 16

Record photograph—showing overjet and labial pitch.

Our service does not end with the delivery of the finished dentures to the patient. Twice yearly our patients are requested to return for a test of facial expression. The prosthogram is fitted to the profile, and if a shortening of the maxillo-mandibular relationship is revealed, the exact amount of change necessary to restore it is easily seen. If no change is indicated by the prosthogram, the dentures are cleaned and

polished, which is another matter that is often overlooked in denture service.

Should a patient remove to another locality, these records are on file and are available to any member of the profession who may be called on for dental service. They are filed in an envelope prepared especially for our work. The financial data, including references, plan of payment, record of charges and credits, etc., fill one side (Fig. 20), while on the reverse side (Fig. 21) we have the diagnostic record, notations on estimates, and the working schedule.

If it were possible to obtain this photographic record in every case,



Fig. 17

Record photograph—showing profile at rest.

the public would soon lose that dread of artificial dentures that is prevalent today. The esthetic results, as well as the masticating efficiency, approach closely to the normal. In cases where the teeth are removed before the patient presents for dentures, the results depend entirely upon the artistic appreciation and ability of the operator, together with his judgment and mechanical and scientific knowledge.

As stated before, the maxillo-mandibular relationship is the key to denture esthetics. In an edentulous case this must first be established as correctly as possible, and then the facial expression worked out as seems indicated. By experience in observing tissue strain or laxity the necessary changes in alignment, form or size of the teeth in order to bring out the desired expression will be apparent. Harmony in form and color also is dependent upon the discrimination that comes from experience in observing these details.

The following comparisons will illustrate the point more clearly.

The left view in Fig. 22 shows a patient wearing artificial dentures



Fig. 18

A prosthogram.

constructed about two years previously. These had never given satisfaction in mastication, and the esthetics were far from pleasing. It is at once evident that the correct maxillo-mandibular relation was not established by the dentist who constructed these dentures. The shortening of this relationship allowed the muscles of mastication to lax beyond their range of function, thus losing the power of mastication.

Note the effect of this shortening on the facial expression and per-

sonality of this man. The flat, protruded chin, flabby pouches under the angle of the jaw, and the firmly set lips mark him as a grouchy, obstinate individual. Correct the dentures, and you see him as he really is—a happy, jocular German with pleasing personality. Note especially the lip expression. These pictures were snapped with the patient, the lights, and the camera in the same position, the only change being the insertion of the new dentures.

In Fig. 23, the profiles, also taken half-size, give a clearer comparison. Note the protruded chin, the wrinkles just below the lower lip, the sagging of the tissues at the angle of the jaw, and the tense muscular



Fig. 19
Checking the prosthogram.

pull on the muscles of the neck. How much more pleasing is the expression with the new dentures! The lips lie naturally over the teeth, not crowded into wrinkles; the angle of the jaw is back to its normal position, filling out the tissue; and the muscles of the neck are lax normally.

In Fig. 24, the change in lip expression is more clearly shown in the life-size profiles. Here also you see the general straightening of the

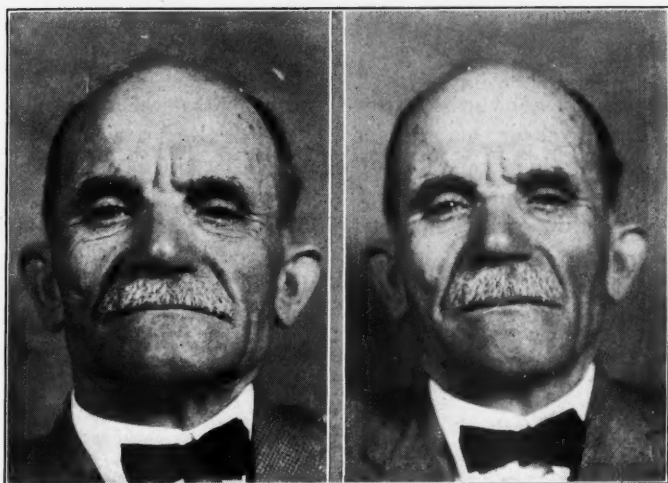


Fig. 22

A patient wearing unsatisfactory dentures—front view.



Fig. 23

Same patient as in Fig. 22 wearing unsatisfactory dentures—profile.

profile line and the lengthening of the face. Without the aid of the camera one hardly realizes the extent of change that is possible through dentures. It is difficult to judge the amount of change that is often made, but these pictures prove conclusively that we cannot be too careful in developing natural and normal facial expression.

An interesting comparison of what is correct in this case is shown by placing these same two negatives one over the other, with the nose and forehead in exact alignment (Fig. 25). By correcting the maxillo-mandibular relationship the chin was moved back and down to the extent that the bite was opened—in this case 12 mm. The change gave this patient greater masticating power also, as the muscles of mastica-

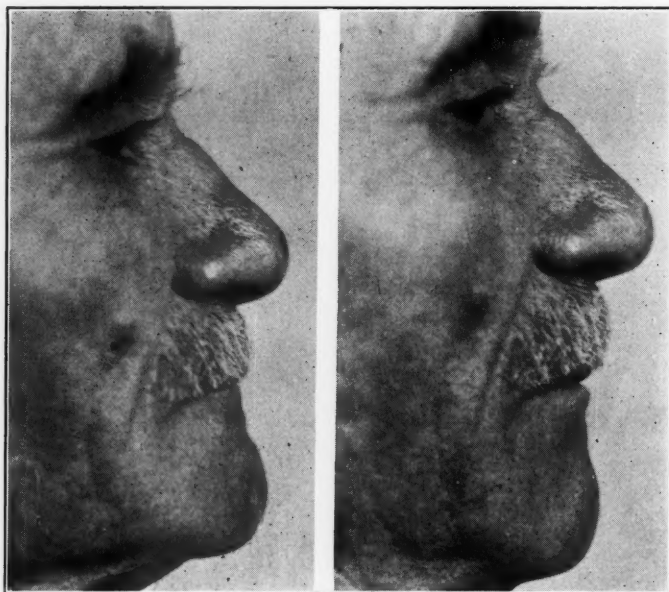


Fig. 24

Same patient as in Figs. 22-23 wearing new dentures.

tion were brought back to their proper relation, thus regaining their power to function naturally.

Fig. 26 shows a case where the bite was opened 13 mm., and the changes are even more apparent. This lady had worn dentures for twenty years, with no change made in them. No doubt normal resorption of the ridges was the cause of her loss of facial expression and masticating efficiency, as she reported she had had good success in earlier

years. But not having been told by her dentist that normal and natural resorption would in time affect the efficiency and alter her expression, she did not realize that she needed new dentures.

Every denture patient should be advised that he is not through with dental troubles when he starts using artificial teeth. Artificial teeth need professional attention regularly, just as natural teeth. Changes may be progressing, unnoticed except by the prosthodontist, and, as with natural teeth, the earlier such corrections are made the better for the individual.

The correction in the profile in Fig. 27 reduced the aged appearance

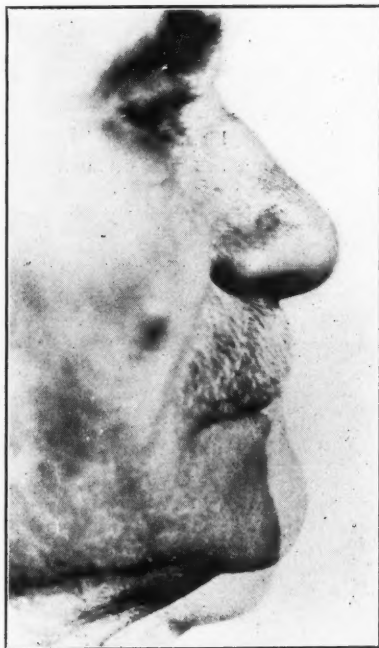


Fig. 25

Composite photograph showing the same patient as in Figs. 22-24 with the old and the new dentures.

of this lady at least ten years. The corrected maxillo-mandibular relation added so much to her masticating efficiency that another ten dropped off on account of her happiness over the results.

A comparison of these two negatives (Fig. 28), placed one over the other with the nose and forehead in exact line, shows again how the chin moves back and down when correct relation is established.



Fig. 26

A patient wearing old dentures.

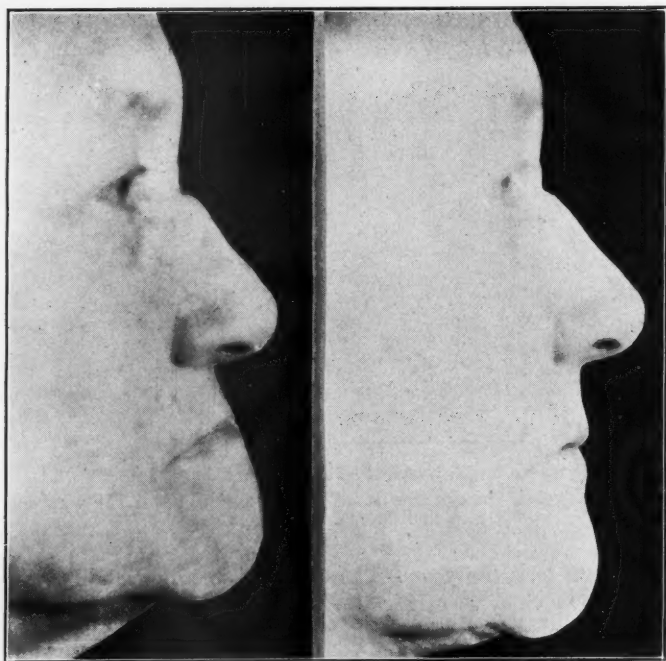


Fig. 27

Same patient as in Fig. 26 wearing old and new dentures—profile.

The work of reproducing or imitating natural teeth and developing normal facial expression and individuality has brought out a number of interesting and valuable ideas. While this may seem a slight diversion from our subject, there is a general connection, and the thought is offered for consideration.

In order to bring out facial characteristics and personality, it is necessary to reproduce in the dentures every possible detail of the natural teeth. The alignment of the natural teeth should be followed closely when setting the artificial teeth. The peculiarities of each tooth



Fig. 28

Composite photograph showing the same patient as in Figs. 26-27 with the old and the new dentures.

should be reproduced, whether it be a difference in size, shape, color, or position; pathological conditions should be the general exception. This may seem to impinge upon our law of leverage—that the artificial teeth must be placed directly over the ridge—but our results, even disregarding this age-old rule, have been very gratifying. The patient talks naturally and masticates efficiently, with greater stability of the dentures at all times.

These facts caused considerable thought on the subject of retention, with the conclusion that muscular pressure and tissue support are greater factors than we have previously considered them.

A series of diagrammatic illustrations has been prepared to show the manner in which they aid or hinder retention. Fig. 29 illustrates a cross-section of a jaw in the molar region, showing the natural tooth in its relation to the tongue and cheek. After the tooth is extracted, it will look something like this (Fig. 30). Then, as the socket heals, the crest of the ridge shifts to the lingual, as in Fig. 31.

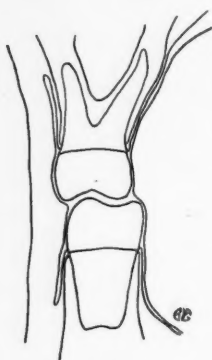


Fig. 29

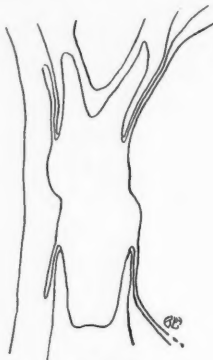


Fig. 30

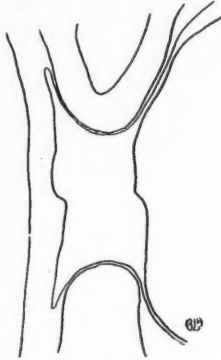


Fig. 31

Fig. 29

Cross-section of jaw in the molar region.

Fig. 30

Cross-section of the same jaw as in Fig. 29, immediately after extraction.

Fig. 31

Cross-section of the same jaw as in Figs. 29-30, showing the shifting of the ridge to the lingual.

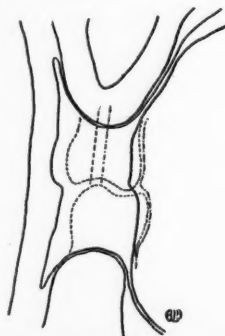


Fig. 32

Cross-section of the same jaw as in Figs. 29-31, showing the pressure of the tongue against the denture.

Retaining the tongue and cheek in normal position leaves but one position in which the artificial tooth can be set, if facial expression is retained, and if the speech of the individual is not interfered with. Then the tongue and the cheek form a natural matrix, which determines the position of the artificial tooth. The pressure of the tongue against the denture and the balancing support given by the tissues of the cheek make a natural muscular matrix, which aids materially in the stability of the denture. This additional stability more than counterbalances the advantage of leverage that might be gained by placing the tooth over the crest of the ridge.

The overpressure of the tongue against the denture, when it is crowded between teeth set over the ridge, cannot but interfere with speech and tend to dislodge the denture continually, and there is no support from the buccal side to counterbalance this overpressure (Fig. 32). This same principle as related to anterior teeth has been illustrated, though it differs slightly from the foregoing description.

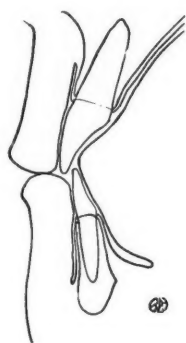


Fig. 33

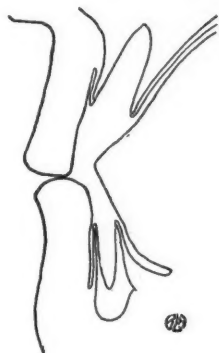


Fig. 34

Cross-section of jaw in the anterior region.

Fig. 34

Cross-section of the same jaw as in Fig. 33, immediately after extraction.

A cross-section of the jaws in the anterior region (Fig. 33) shows the natural teeth in position, with the natural muscular matrix, namely, the tongue and the lips.

When the tooth is extracted (Fig. 34), through natural resorption of the process or through surgical operation the crest of the ridge moves to the lingual (Fig. 35). Note the natural muscular matrix, which determines the alignment of the artificial tooth, if facial expression is not to be changed, and if the tongue retains its natural space and speech is not interfered with (Fig. 36).

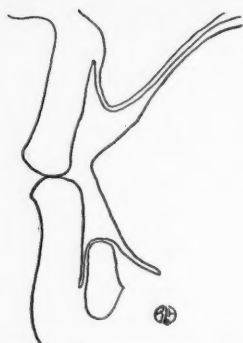


Fig. 35

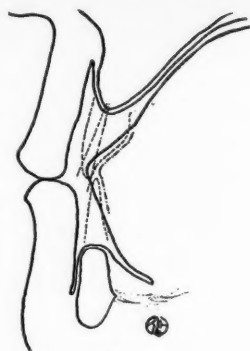


Fig. 36

Fig. 35

Cross-section of the same jaw as in Figs. 33-34, showing the shifting of the ridge to the lingual.

Fig. 36

Cross-section of the same jaw as in Figs. 33-35, showing the natural muscular matrix.

No doubt the neck of the artificial tooth as usually set approaches more closely to the natural alignment than does the incisal edge, especially on anterior teeth. But, as a rule, the whole of the posterior tooth is placed too far to the lingual. For the sake of the advantage from the lessened leverage when teeth are placed over the ridge, we overlook the advantage or assistance that nature affords in the muscular matrix.

In other words, give the patient the exact alignment of his natural teeth, the same overbite and the correct maxillo-mandibular relationship, even if some of the laws of leverage are impinged upon, and he will have greater stability of dentures, which means more comfort, greater efficiency in service, and at the same time a natural harmony of facial contour.

In closing, allow me to quote a noted character analyst: "The mouth is the most wonderfully expressive feature of the face. The tongue may be silent, but the mouth never ceases to speak; it is the key to one's character." Do we as prosthodontists fully appreciate these facts when constructing dentures? Do we appreciate them from the patient's standpoint?

As facial expression, personality and individuality are of vital importance to every individual, then upon a realization of their value and upon a correct interpretation of them from a prosthetic standpoint depends the success of our labors. Unless these details are correlated with the scientific requirements, and unless we equip ourselves with knowledge, skill and the necessary agents to develop an appreciation of the fine art in prosthodontia, ideal service can never be a realization.

PERCY HOWE'S LETTERS

In Collaboration with "Brother Bill"

ELEVENTH LETTER

Dr. Howe receives a letter dealing with the dentist's value as a diagnostician and turns it over to *Brother Bill* for a reply.

My dear Doctor:

Because your letter of the 17th deals with conclusions to be drawn from some of the work that Dr. Howe is doing rather than with the direct results of that work, and because Dr. Howe prefers not to draw conclusions as yet, he has turned your letter over to me for reply, with the understanding that he is not to be held responsible for anything said herein. I was quite eager that he should do this, because I carry clearly in mind several instances of the tremendous value of certain forms of dental service that are not so often available to patients as it is desirable that they should be. If I can paint for you in words the picture of a case that I have had under observation near home, it will make a better reply than anything else I could write.

Your letter reads in part as follows: "The announcement for your Letters, which have been running in *THE DIGEST* since January, contains this sentence: 'The dentist may become one of the most important diagnosticians and servants in the entire field of scientific health service.' What you have written about the results of diet-deficiencies has been interesting and instructive and has much practical value, but I do not see that you have made out a case for the dentist as a diagnostician whose services are to be of great value to his patients."

Diagonally across the street from our house, in a home that is a model of refinement and luxury, lives a family by the name of Snow. There are several children, the youngest of whom is Alba. When I first knew her, she was a rather frail little thing of about four years. When we were at their house or they at ours, she usually sat quietly beside her mother or played in the demure and noiseless way that is generally considered to be ladylike.

At that time the family dentist was Dr. A. Because the point of my story depends on certain fundamental differences in the service habitually rendered by two dentists, of whom he is one, I want to say a little about each of them. Dr. A. was a gentleman, a good dentist, and a credit to the profession. During his later years he probably did not keep quite so well abreast of some of the less conspicuous professional advances as he had when younger, but for many years he trained

the parents in his clientele to bring their children at frequent intervals for cleaning and fillings and to give even the deciduous teeth good home care. As a result, Alba had been taken to him frequently from an early age and had never suffered from toothache. When she was about five, Dr. A. died and the family went to Dr. B.

Dr. B. was a much younger man and more conversant with some of the newer phases of practice than Dr. A. could well be. He was not less keen about good office and home care for the deciduous teeth, but he realized that there were certain cases in which the polishing and filling were not all those little patients needed. He had had a number of cases in which the deciduous arch had failed to expand spontaneously to provide room for the permanent teeth to erupt in good alignment, and when they did erupt, they were irregular, in some cases distressingly so. He became intensely interested in Dr. Bogue's work and watched the results of his spreading the deciduous arches, sometimes heroically, as well as the results of some of Bogue's friends by similar methods. In some cases he saw astonishing physical development follow so closely upon the expansion of the deciduous arches that he could not resist the conviction that there was a very close interrelation between the dental service and the increased bodily vigor.

Dr. B. had two children of his own, whom he had some difficulty in bringing to a state of vigorous health. He made a study of diet in conjunction with some physicians and applied the results of his studies to the diet of his family, with great benefit to all the members. Being very keen mentally, he brought these experiences to bear upon his practice, until he found that, instead of looking exclusively at his patients' teeth, he was looking at each child as a little human organism that nature was trying to develop into a fine, robust man or woman. If development was not going on apace, he began to look for hindrances, especially those within the field of his labors, and to seek to remove them. The limitations of dental repair and corrective service forced him to look for the causes of the conditions with which he was contending. He was forced to believe that even in the homes of people in easy financial circumstances many children and adults suffer from starvation. And so he began to take an active interest in the diet of some of his little patients and make suggestions.

Please understand that I am trying to outline to you quite different forms of service by two members of our own profession. The men were equally fine in character and in devotion to the interests of their patients. They may have been equal in mental endowment, but Dr. A. saw teeth and not much of anything else, while Dr. B. saw the teeth as part of a wonderfully complicated mechanism, first of all in

relation to the *facial machine** and then in relation to their effects on other activities in the body and the effects of at least some other activities on them. B. cleaned and filled and polished and taught also. He may not have cleaned nor filled nor polished nor extracted any better than A., but he saw more and did more and taught more and got results of which A. never dreamed. And those results seem to me to be some of the most important that it is within the province of our profession to achieve.

It took some time for Dr. B. to get acquainted with Alba and Mrs. Snow, but on the third visit he asked permission to make some study models of Alba's mouth, saying that he believed that he could get from them information of which he was in need. It was his habit, while chatting with his little patients, to learn the age and weight and height, and these were always unobtrusively noted on the examination chart. In cases of visible or suspected deficiency he made it a point to obtain and record much collateral information as to what the child liked to do and how she did it, how she played, what she ate, and when she had been ill and of what.

When he had studied Alba's casts and his records, his secretary wrote Mrs. Snow saying that he had formed some conclusions that he thought would be of value to her, and that if she cared to make an appointment he would be glad to place these data before her. She made the appointment, and, without attempting to reproduce anything like the dialogue that ensued, I shall try to summarize the sense of what he said, as follows:

"I have studied Alba personally and the models that I made of her mouth. Although the tables for height and weight of children and adults are more or less unsatisfactory, she is evidently below the proper height and weight for her age. Her dental development is by no means what it should be. At her present age of five and a half her baby front teeth should be well spread apart in front to make room for the permanent teeth, which will soon begin to erupt. Under the present conditions they will be irregular in position. The vault of her mouth is high rather than broad and flat as it should be, and that probably means a deflection of the septum of her nose. Her teeth are quite soft, more so than they should be at her age, and if they did

* Since the term *facial machine* is new and therefore entirely unknown, an explanation should be offered as to its meaning. It arose out of a conversation in which Dr. Stanton said to Dr. Clapp that students of human anatomy and physiology were coming more and more to look upon the human body as a machine composed of mechanisms suited to special functions, such as respiration, circulation, reproduction, etc. He then spoke of the necessity that professional men concerned especially with the functions of sight, hearing, respiration and mastication should all take somewhat broader views than have been common in the past, and that it would be well for all of them to recognize all the functions that the face performs and the mechanisms necessary to those functions. Dr. Clapp then suggested that the principle of viewing the body as a machine be applied to the face and the term *facial machine* be coined as expressive of that view, with the thought that each function might then be viewed as subordinate to the combined functions of the facial machine.

not have such excellent care, they would be subject to a good deal of decay. I do not know of any means by which she, unaided, can now cause her arches to expand as they should for the benefit of her health, and as they must if her second teeth are to be regular in position and look well. The arches can be easily expanded without serious discomfort to her. There is, however, a serious deficiency somewhere, and I believe it to be a form of starvation.



"She has told me during our visits that she eats mostly cooked fruits, cooked cereals, that she likes eggs, bacon and toast, lamb chops, baked potatoes, and that she drinks milk that she knows is good because some

one has explained to her that it is pasteurized. She does not care for raw fruits or vegetables because they do not seem to her to be so nice as those that have been cooked with sugar.

"I understand that she has a dolls' house under a big tree in the back yard and likes to play there in pleasant weather. She has another dolls' house in her playroom for days when the weather is not pleasant. She does not like to play with the other girls and boys very well because they are too rough and they play games in which they run a good deal and she cannot keep up with them.

"I believe that she has never been very ill, but that she has been, as she says, a 'little sick' several times. While none of these symptoms is very definite, experience with others of my patients who have been in similar condition indicates that these signs, taken together, are of such importance that knowledge of what they may mean should be placed before parents. Some of this information deals with subjects that are beyond the scope of dentistry. If you wish me to make suggestions, I will, but if you think I should not, I will not."

Mrs. Snow expressed a good deal of astonishment that Dr. B. should think of starvation in connection with Alba, and it was necessary for him to make her understand that starvation in the sense in which he was using the term did not imply a lack of plenty to eat, but that it described the deficiency of one or more of the food elements essential to the maintenance of the best health of the body, and also perhaps of sunshine. He thought it quite possible that as the result of a rather long continuation of these conditions there might be an endocrine unbalance. He got her to understand that the hunger which impels one to eat is not necessarily identical with hunger on the part of the tissues, and that satisfying the one may not satisfy the other.

He explained that he was not a dietitian in the serious sense of the word and then told when and how he had gained the information he possessed, and how he had applied it in the cases of children, adding that he always tried to do so in cooperation with the family physician. The results of such service for some of his patients had been so satisfactory that the parents were entirely willing to have their names used as references. He was able to illustrate his points by the story of a girl who lived not far from Mrs. Snow and whom she knew. She was much surprised to think that this girl, who is the embodiment of vigorous health, could ever have been like her Alba.

Five years before, this girl had been so debilitated that her parents had grave fears for her life. There was great retardation of dental arch development and malocclusion. The arches were expanded and the occlusion corrected. Within two years she grew four inches in height, the circumference of her chest on expansion increased one and a half inches, and she was ruddy and healthy. During the next two

years she grew five and three-quarters inches more, making nine and three-quarters inches in four years. In that time the circumference of her chest on inspiration increased seven inches. She received no other treatment by physicians during the four years. Her parents had no hesitation in saying that, in their belief, the dental treatment saved her life.*

He showed her that Alba's diet lacked important food elements, and that the continued lack of these might be the cause of her condition. He suggested a diet that would supply the materials necessary for her growth and health.

Mrs. Snow promised to take these suggestions under advisement. Evidently she did this pretty thoroughly, because she returned with the matter well at her fingers' end. An endocrinologist had been consulted and believed that there might be a deficiency in the function of the parathyroid glands. He suggested that this might possibly be overcome by placing the child, nude, in the rays of the noonday summer sun, without the intervention of glass, beginning with a three-minute exposure the first day and increasing it not more than a minute every second day, since the consequences of overexposure might be serious. She was to be taken out of the shade of the big tree and allowed to play in the sunshine, even if she developed tan and freckles.

Mrs. Snow had consulted the family physician and had tactfully gotten Alba interested in a gradual change of diet that would furnish an ample supply of the necessary food elements. She was to have liberal quantities of fruits, especially oranges; lemonade, whenever she wanted it; good ice cream frequently; and salads made of uncooked fruits and raw vegetables as fast as she could be taught to like them. She could have all the whole wheat bread she desired, preferably toasted hard and liberally buttered, and clean, whole, unpasteurized milk. The deciduous arches were spread to proper form. That was four years ago.

And now let me try to describe a scene which, for me at least, goes far to tell the rest of the story. Recently I took an afternoon off and worked in my garden. Near the close of the day I heard shrieks of delight from across the street and went over to see who was having so much fun. When I got to the place, I found two football teams of youngsters having the time of their lives. And what do you think? Alba Snow was quarterback on one team!

During a brief lull in the game I called to my son, who was on the opposing team, and who came to me blowing like a porpoise. After talking to him a moment I said, "Ask Alba Snow to come here."

* Figures quoted by courtesy of E. S. Ulsaver, D.D.S.; published in greater detail in *The Dental Digest*, February, 1917, page 92.

He seemed a little puzzled and then said, "Oh, you mean Bob."

"Why do you call her that?"

"'Cause she's a reg'lar feller. And, say, Dad, don't make any mistake, she's some scrapper. I wish she was on our side."

As Alba came toward me, I examined her critically. Her hair was thick and shining and, though not tall, she certainly looked big and husky. She had on a khaki skirt that stopped just above her knees. Between the hem and the top of her rolled socks there showed several inches of thick, sturdy knees well begrimed with grass stain and dirt. There was a bruise on one cheek, but she seemed unconscious of it.



When the game was resumed, her team faced me, just in front of its own goal at the farther end of the yard. In about thirty seconds "Bob" had upset a boy two years her senior, grabbed the ball when he fell, and run through the opposing team to make a touchdown near where I sat. I watched her closely, and she ran the whole distance *with her mouth shut*. Do you, with all your years of experience in dentistry, get the force of that—that she went through the excitement and exercise of a scrimmage and a run and kept her lips closed without even thinking of it? Can you measure the transformation that must have occurred to make that possible to a little, frail, doll-housekeeping lady with a narrow arch and a deflected septum? I asked her to let me look in her mouth. I saw a broad dental arch with every tooth in good position, not a sign of decay and a fairly flat vault. The tissues were shining with health.

And, wonder of wonders, Mrs. Snow was sitting in the broad sunlight watching the game! She showed no tremors when Alba went down under two or three husky boys, and the bruise on Alba's cheek and the dirt on knees and dress left her undisturbed. Sitting down by her, I asked a few questions.

"Yes," she said, "the transformation in Alba is complete. Mr. Snow and I feel that we owe to Dr. B. a debt we can never repay. Alba may have lost some of the nice, ladylike ways, but every time my husband and I look at her and think how different she seems from the days when we were by no means sure we could raise her, our hearts are so happy that we brush that aside with a laugh."

If there were a niche in that house you would probably find a bust of Dr. B. in it!

I felt that you would want to know what Dr. B. got out of a case of this sort, so I asked him. "Oh, yes," said he, "I have several children whose cases are more or less like Alba's and the results have been about the same. I see them for a half-hour every three months, just to clean inaccessible tooth surfaces and make sure everything is all right. When those children come, they are like rays of sunshine in a dark room, and everybody in the office welcomes them. Most of them call me 'Uncle Doctor' and they bounce into the chair and say, 'There is nothing to do, Uncle Doctor, but hurry up and do it so that I can get going.' They tell me their stories and take me away from my work for a few moments into a world that has been pretty well gone from me for a long time. I am never tired when I have finished working for them, and I wish my practice was all like that!"

"Are they afraid?"

"Certainly not. Why should they be? Those whom I got in time have never been hurt and there is no reason why they should ever be. Those who came later accepted the first hurt as part of the price of neglect and it has never been repeated. Of course, they are not afraid!"

And then he went on more seriously: "You see, the deficiencies in diet and the retardation of growth may be serious and yet not give rise to symptoms that the general medical practitioner can put his finger on as pathological. But to the dentist there are several signs of great diagnostic importance. The deciduous anteriors may not spread apart when they should; perhaps there is an abnormal condition of the enamel and the dentin; perhaps great susceptibility to caries in spite of good oral care; perhaps a high palatal vault, which usually indicates a deviation of the septum; perhaps a general retardation in the development of the osseous and muscular structures, so that the bones are small and frail and the tissues nearly transparent, especially in the

lobes of the ears and the wings of the nose; and a ready susceptibility to colds and other ills.

"These should be sufficient guides to enable dentists to explain to parents the probable existence of serious systemic deficiencies and to make valuable suggestions for their correction."

I have not space to write here anything about the diagnostic possibilities in the service for adults, for that is, as Kipling says, another story. But if you can get out of this little tale what I have tried to write into it, you will have no difficulty in realizing that the dentist who knows what he ought to know and how to use it may become one of the most important diagnosticians in the whole group of scientific health servants.

Yours,

Bill



[VALUE OF ORAL HYGIENE]

There is not one single thing in preventive medicine that equals mouth hygiene and the preservation of the teeth.

—OSLER.

Special Teeth for Cross-Bite Cases

By Alfred Gysi, D.D.S., Zurich, Switzerland

Professor of Prosthetic Dentistry, University of Zurich
(Literary Collaboration of George Wood Clapp, D.D.S.)

FIFTH ARTICLE (Continued)

BALANCE IN NATURAL AND ARTIFICIAL DENTURES

(Continued)

Fig. 43 presents great resorption. The interalveolar crest line is inclined at 60° to the occlusal plane, and the height of the bite along it is only 25 mm.

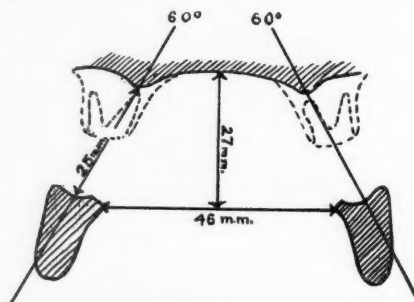


Fig. 43

Extreme resorption, with approximation of the jaws and a 60° interalveolar-crest-line angle.

In Fig. 44, normal-bite teeth are set in normal articulation in two different ways. At L, the interalveolar crest line passes through the center of the balancing facets of both molars. At R, similar teeth are

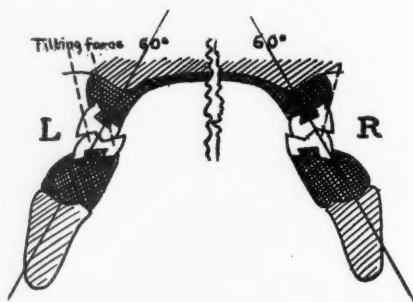


Fig. 44

Normal-bite teeth in normal arrangement.

set so that the interalveolar crest line passes through the tip of the buccal cusp of the mandibular molar and the deepest part of the main fossa of the maxillary molar. The directions of the tilting forces are shown by the broken lines. On each side the tilting force which is applied to the maxillary buccal cusp falls far outside the base of the denture. The set-up at R is the better of the two for stability, but the set-up at L affords more tongue space. Both of these set-ups of normal-bite teeth are unfavorable in cases with this inclination of the interalveolar crest line.

In Fig. 45, the degree of resorption and the height of the bite are the same as in Fig. 43. Here normal-bite molars have been transposed from the maxilla to the mandible and from left to right and set in cross-bite articulation. At L, the interalveolar crest line passes through the centers of the balancing facets of both molars. At R, it passes through the tip of the buccal cusp of the tooth now on the maxilla. This transposed arrangement is hardly more favorable than that shown

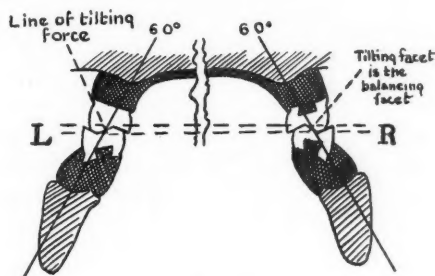


Fig. 45

Normal-bite teeth transposed from maxilla to mandible, and vice versa, and from right to left, and vice versa, and set in cross-bite relation.

in Fig. 44, because the tilting force applied to the buccal cusps of the teeth now on the maxilla on each side falls far outside the base of the denture. Neither the arrangement at L nor that at R affords much more tongue space than the two arrangements in Fig. 44, because, when the normal-bite molars are set in cross-bite articulation, the occlusal surfaces must be level; that is, the tips of the buccal and lingual cusps of the molars on the maxilla must be in the same horizontal plane. This forces the necks of the mandibular teeth far inward and seriously reduces the tongue space.

Fig. 46 is the same in all respects as Fig. 45, except that the teeth are shown with the mandible in lateral occlusion. On the working side the balancing facets act as tilting facets, because the tilting force falls

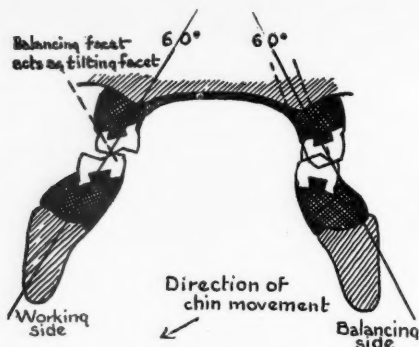


Fig. 46

Normal-bite teeth transferred as in Fig. 45, in lateral occlusion.

far outside the base of the denture, as shown by the broken line. While the teeth are in contact, the balancing force, the direction of which is shown by the broken line on the balancing side, holds the dentures in place against the tilting force on the working side. But when the teeth are separated by even a moderately hard bolus of food on the working side, the tilting force on that side will be operative, while the balancing force on the balancing side will be inoperative. Since primary mastication is effected on the working side and the largest and hardest particles of food are between the teeth on that side, and since only secondary mastication of small and soft portions of food is accomplished on the balancing side, there is no probability that the food on the balancing side will be of a quantity or a consistency to balance the tilting force on the working side.

In Fig. 47, the degree of resorption and the height of the bite are

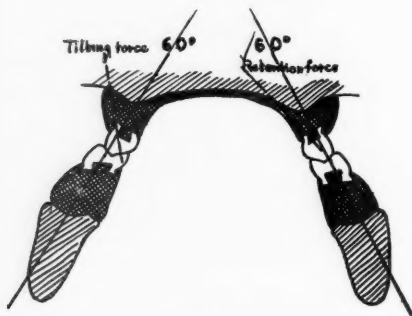


Fig. 47

Cross-bite teeth in central occlusion. The height of the bite and the inclination of the interalveolar crest line are the same as in Fig. 43.

as in Fig. 43. Cross-bite teeth are here shown in central occlusion. The direction of the tilting force is shown by the broken lines. It does not fall outside the base of the denture, and there is much more tongue space than when the dentures were made for the same case with normal-bite teeth, as in Figs. 44 and 45. The lingual side of the mandibular denture is made with straight walls, and there is nothing upon which the tongue can catch to lift the denture.

Fig. 48 shows the same resorption and the same height of bite as Fig. 43, that is, 25 mm. along the interalveolar crest line. The teeth, arranged as in Fig. 47, are here shown in lateral occlusion. The direction of the tilting force is shown by the broken line at the left of the illustration. Even in extreme lateral occlusion this does not fall outside the base of the denture. The practical value of cross-bite teeth as compared with normal-bite teeth, in cases of extreme resorption, can be seen by comparing this figure with Fig. 46. In Fig. 46, the tilting

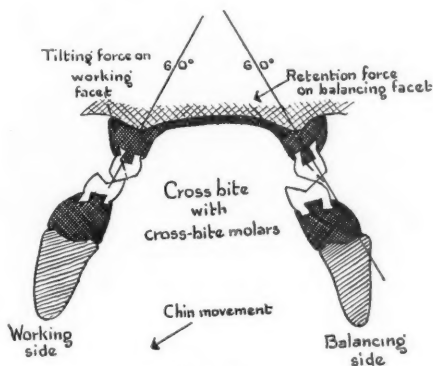


Fig. 48

Cross-bite teeth in lateral occlusion.

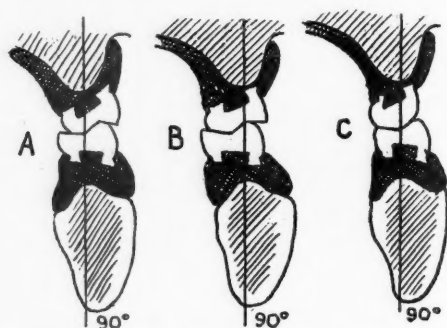
force applied to the buccal cusp of the molar on the maxilla falls far outside the base of the denture and renders it very unstable. In Fig. 48, the same tilting force applied to the maxillary tooth does not fall outside the base of the denture.

In the *Second Article* much was said about the importance of sufficient space for the tongue when making artificial dentures. Fig. 49 illustrates three positions of artificial teeth, one of which is unfavorable even in the most ideal ridge relations. The other two conditions are favorable as regards tongue space.

These three diagrams (Fig. 49) represent a case in which the crest of the maxillary ridge is directly above the crest of the mandibular ridge, so that the interalveolar crest line is at 90° to the occlusal plane.

In A, the interalveolar crest line passes through the deepest part of the principal fossa of the mandibular molar. This holds the teeth far enough buccally to provide good space for the tongue, but the buccal cusp of the maxillary molar is so far outside the maxillary ridge that a slight tilting force will be likely to dislodge the denture.

In B (Fig. 49), under the same ridge conditions, the interalveolar crest line passes through the deepest part of the principal fossa of the maxillary molar. The lingual cusp of the mandibular molar is necessarily moved far toward the median line, and this reduces the tongue space so that the mandibular denture may be continuously lifted out of place by the tongue as it seeks to force the food between the teeth, first on one side and then on the other. The maxillary denture will probably be more stable than that shown in A.



Inclinations of the interalveolar crest line

Fig. 49

In C (Fig. 49), cross-bite teeth are shown in the same ridge relations as in A and B. The interalveolar crest line passes through the deepest part of the principal fossa of the mandibular molar. The space for the tongue is similar to that in A. The maxillary molar is not exposed to the tilting force shown in A, and the maxillary denture will be stable on the ridge.

CROSS-BITE TEETH IN CASES SHOWING DIFFERENT INCLINATIONS OF THE INTERALVEOLAR CREST LINE

While the use of cross-bite teeth is indicated especially in cases where the interalveolar crest line is inclined to the occlusal plane at an angle of less than 80° , they may be used with comfort and satisfaction in cases where the ridge relations would permit the use of normal-bite teeth, as is clearly shown by the diagrams A, B, C, D, E, F, in Fig. 50.

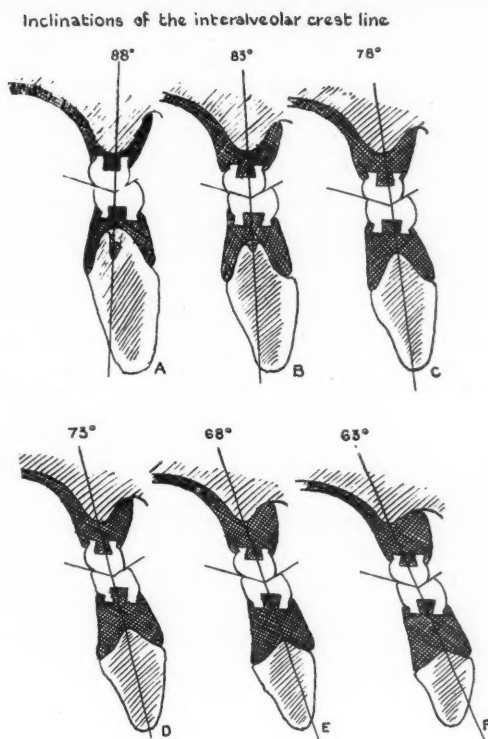


Fig. 50

Diagrammatic illustration showing that cross-bite teeth may be used to advantage in cases presenting widely different inclinations of the interalveolar crest line.

ARTIFICIAL DENTURE BALANCE IN INCISING MOVEMENTS

It is essential to the maximum efficiency of artificial dentures that the pressure which comes upon the incisors during the incising bite should be balanced by a contact of the molars which will hold the dentures firmly in place during the return from the incising excursion. For esthetic reasons it is not often desirable to place the maxillary incisors directly beneath the maxillary ridge. The necks may be quite a distance anterior to the ridge, and the incisal edges may protrude so that even a slight pressure upon them may dislodge the denture unless it is supported against that force. In cases where the alveolar ridges are nearly ideal in form and character, this balance may not be of

great importance, but in proportion as the ridges are resorbed the importance of this balance increases, until, when the ridges are completely gone, it is extremely important.

A proper balance of the dentures in the incising movements can be obtained only by the construction of properly inclined incising facets on all the teeth. As this subject leads to a more intimate study of tooth form than is proper here, it is only mentioned now but will be more fully discussed at a later time.

(To be continued)

Preventive Dentistry from the Orthodontic Viewpoint*

By Frank Delabarre, A.B., D.D.S., M.D., Boston, Mass.

A SUMMARY

Preventive dentistry has received the official support of a number of dental societies. The resolutions adopted by the Massachusetts Hygiene Council** have been ratified by fifteen States, the Pacific Coast Dental Congress, Canadian Dental Association, American Dental Association and the Hygiene Commission of The Fédération Dentaire Internationale.

At a recent dental meeting it was claimed that all dental measures were preventive, including curative and reparative measures. The essayist does not consider that this is correct.

Prevention is effective in inverse ratio to the age of the patient and must be practiced on children. Consequently an age limit must be set beyond which prevention is of little value. This is approximately at the period of adolescence, or when the second permanent molar has erupted and taken its place.

It is time to stop neglecting the child, and for the successful carrying out of prevention certain cardinal principles are necessary:

1. Children must be first seen at the age of three.
2. The psychology of the approach to a child must be clearly understood. Some men are temperamentally unfit to handle children and can never make a success of it. There is a big field for those who are fitted for the work.
3. There must be regular and systematic appointments. It must not be left to the parents to say when the child should come in.
4. There must be a proper division of responsibility between the parents and the dentist.

* The entire paper was read before the First District Dental Society, New York, February 7, 1927.

** See page 805.

5. The service must be considered from the standpoint of the health of the child as a whole, and not merely a local affair.

6. Careful attention must be paid to dental defects and initial lesions.

Dentistry is related to medicine, though perhaps in a humble way, and the terminology should be related. Preventive medicine is a sanitary science and deals with the masses, not with the individual. Pediatrics is similar to preventive dentistry in that it deals with the individual and is chiefly preventive. The essayist therefore recommends the term *oral pediatrics* or *pediodontia*.

Orthodontists welcome prevention and appeal to dentists at large to emphasize its necessity. Restoration of function is the important thing. Orthodontists are practicing prevention by following Bogue's teaching, which advocates the early diagnosis and treatment of malocclusion.

Malocclusion may occur from various causes, systemic and local. The neglect of the teeth in early childhood is one factor, and an important one. The crippled mouth must be put into good condition. The premature loss of the temporary teeth complicates the technical problem of orthodontia. The loss of a permanent tooth is a calamity and necessitates a compromise treatment.

The worst effects of neglect of a child's mouth are malnourishment, delayed growth and mental retardation. The orthodontist needs the help of the pediodontist before, during and after the treatment. It has been proved at the Forsyth Dental Infirmary that 80 per cent of all caries can be eliminated and the extraction of teeth reduced to the zero point.

Resolutions Adopted by the Massachusetts Dental Hygiene Council

Whereas, Up to the present the attention of dentistry has been centered mainly on the work of restoring lost dental tissue; and

Whereas, The only hope of real progress lies in the prevention or early control of dental diseases; and

Whereas, Prevention, to be effective, must be applied early in the life of the individual—and early in the life of the tooth, be it

Resolved, That dental service must begin early and be systematic and periodic in order to obtain the maximum of prevention with the minimum of operative work, and properly to educate the child in habits of oral hygiene; and be it

Resolved, That in the aim to attain prevention of systemic and dental disease:

- (a) No defect is too slight to receive definite attention.
- (b) The temporary teeth should receive as much care as the permanent ones in order to promote the proper development of the jaws and head, and to maintain function.
- (c) Particular care and attention should be given to developmental pits and fissures, whether occurring in primary or secondary teeth, or whether decay is or is not present; and be it

Resolved, That the Dental Hygiene Council of Massachusetts declares for the principles and practice of children's dentistry and maintains that the most effective dentistry that can be done for any individual is the service rendered between the second and fourteenth years of age; and be it

Resolved, That this Council calls upon all dentists to uphold these fundamental principles and to do everything possible to promote the practice of children's dentistry by professional and public education and in public and private practice.

March 29, 1926.



[AGAIN, DIET]

Of the effect of diet on the teeth, doubtless many of you have made observations of your own. This phase of the question has naturally interested me greatly, and I am firmly convinced that caries of the teeth and inflammatory diseases about the teeth and gums are very largely due to faulty nutrition and other dietetic errors. Furthermore, pus formation occurs more easily when general bodily resistance is lowered, and this is always the case when the diet is faulty.

—OWRE.

Simplified Maxillary Anesthesia*

OBTAINED BY A SINGLE IMPROVED TUBEROSITY INJECTION, INTRA-ORALLY, WITH A $1\frac{5}{8}$ -INCH STRAIGHT NEEDLE

By Samuel D. Hartstein, D.D.S., Brooklyn, N. Y.

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A CLINICAL CASE REPORT

It is with a great deal of pleasure that I give the report of a clinical case that presented at the Greenpoint Hospital in which I made a tuberosity injection for the extraction of the maxillary right cuspid, second bicuspid and second molar. The patient, Mrs. E., about 30 years old, seemed to be of a nervous temperament. The above-mentioned teeth were the only ones remaining in the maxilla and were immovable when grasped with the fingers.

Iodin was first applied to the tissue at the point of insertion. I employed a glass syringe and a straight needle, $1\frac{5}{8}$ inches long, 21-gauge. I held the syringe in a penlike manner and inserted the needle into the reflection of the mucous membrane in line with the beginning of the posterior third of the second molar (in this case), the syringe being at about an angle of 45° to the occlusal surfaces of the maxillary molar and bicuspid teeth, and the side of the needle and barrel of the syringe being parallel to the alveolar plate. At the point of insertion I deposited a few drops of the solution. Then, after passing the needle further posteriorly, slightly beyond the tuberosity, I again deposited a few drops. Drawing the barrel of the syringe outward as far as the corner of the mouth would allow, and withdrawing the index finger of my left hand, which had been retracting the cheek, I was able to bring the barrel of the syringe farther out and so the point of the needle was brought closer to the zygomatic surface of the maxilla. Here I deposited slightly more of the solution than before. From here on, the needle was inserted superiorly and interiorly, and after the needle was practically seven-eighths imbedded, the remaining solution was deposited.

At exactly 11:02 $\frac{1}{2}$ I made the tuberosity injection and at 11:06 I found that I had obtained anesthesia buccally and lingually of the second molar and second bicuspid and lingually of the cuspid.

After having satisfied myself as far as the anesthesia was concerned, I grasped the second molar with the forceps and the patient uttered a cry. I removed the forceps and questioned her; she claimed that she had felt pain. Knowing her to be of nervous temperament, and noticing that she did not seem to be able to distinguish between pain and pres-

*Read before the Greenpoint Hospital Staff, at the St. George Hotel, Brooklyn, N. Y., at its conference and dinner on January 26, 1926.

sure, I explained that when a tooth was extracted she naturally would feel some pressure during its removal, which she must not mistake for pain. She also feared the breaking of the tooth and had asked me to be very careful in its extraction. While making the injection, I was compelled to ask her to relax the lips and cheeks, after which I was able to make it more easily, thus proving that she was under a great strain because of fear of pain.

Having gained her confidence, I extracted the second molar. On inquiring if she had experienced any pain, she answered that she had felt only the tooth coming out. I then extracted the second bicuspid, and she repeated the remark. As the cuspid was being extracted, the patient made a response as if she had felt pain, but again on being questioned answered definitely that she had had no pain whatever, but felt only the tooth being removed. The cuspid root was found to be very long, with a small granuloma attached to its apex. There was very little bleeding as the result of these three extractions; in fact, less than I have ever seen in my dental experience for maxillary tooth extraction. In the aforesaid operation I used 3 c.c. of solution.

On December 26, 1925, for a patient in my private practice I obtained a perfect anesthesia of one half of the jaw, both buccally and lingually, including the central incisor, and found to my surprise anesthesia of the adjoining central, buccally only, for about a minute. The next minute the anesthesia was gone. I have obtained maxillary anesthesia of one half of the jaw by the improved tuberosity injection with a 15/8-inch straight needle. I have made single extractions both in the hospital and in my private practice with tuberosity injections, where I obtained anesthesia buccally and lingually of third molars, second molars, and first molars; and for other patients having more than one extraction, with a single tuberosity injection, of second and third molars; of second and first molars; and of second bicuspid and first and second molars.

This case report is the largest area I have covered in extractions, up to the cuspid tooth, with a tuberosity injection only, and I hope in the near future, when a case presents, to extract the central and lateral teeth also.

I am of the opinion that I was the first one to obtain with an ordinary 15/8-inch straight needle, maxillary anesthesia of one half of the jaw from third molar to central, inclusive, by the single improved tuberosity injection and with slightly less than 1 c.c. of solution. Dr. A. E. Smith employed a needle with an extension hub, and Dr. Mendel Nevin's modified method was with a needle mounted on a right-angle attachment.

250 Havemeyer Street.

Oral Surgery in Practice

By James L. Zemsky, D.D.S., New York, N. Y.

Attending Surgeon, Department of Oral Surgery; Chief of Clinic and Director, Surgical Periodontia Department, Midtown Hospital, New York

(Continued from October)

FRACTURE OF ALVEOLAR PROCESS

¶183. Fracture of alveolar bone followed by loosening of teeth requires ligation of the teeth and a strictly instituted mouth hygiene. In most instances the teeth tighten up and conditions return to normal. (See Figs. 162-164.)

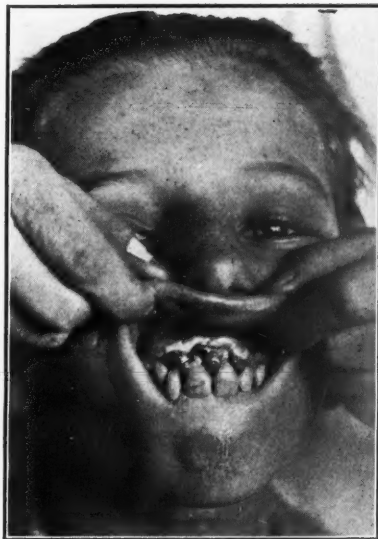


Fig. 162

Maxillary anterior teeth of a boy, 12 years old, who sustained a fierce blow on the mouth, which resulted in loosening the centrals and laterals. (See ¶183.)



Fig. 163



Fig. 164

Figs. 163-164

Roentgenograms of the maxillary anterior teeth of the patient shown in Fig. 162. There is no fracture of either the teeth or the maxillary bone, according to the roentgenograms. Clinical examination, however, revealed spicula of alveolar bone embedded in exuberant tissue. The teeth were extremely loose, particularly the right central and lateral. (See ¶183.)

COMPOUND FRACTURE OF THE MANDIBLE AT THE SYMPHYSIS WITH
DISPLACED FRAGMENT AT THE NECK OF THE CONDYLE (Figs. 165-172)



Fig. 165

Roentgenogram taken at the symphysis, showing a transverse line of fracture running through the median line. There is a displacement of the fragments, which are overriding below and separated above.



Fig. 166

Roentgenogram of the same mandible as in Fig. 165. This is a lateral view of the right side of the mandible, revealing a fracture through the neck of the condyle with the head carried inward.



Fig. 167

Photograph taken after the fracture at the symphysis (Fig. 165) had been reduced, the mandibular teeth wired and the external wound on the chin sutured. This shows the extent to which the patient was able with great effort to close the mouth at this time. (See #181.)



Fig. 168

The apparatus used in treating the fracture in the case shown in Figs. 165-166. This appliance is the author's modification of the Fowler apparatus. (See ¶181.)

- 1—Iron posts, which serve as supports for the elastic band.
- 2—Plaster of Paris cap, encasing the head.
- 3—Elastic band, passing beneath the chin.

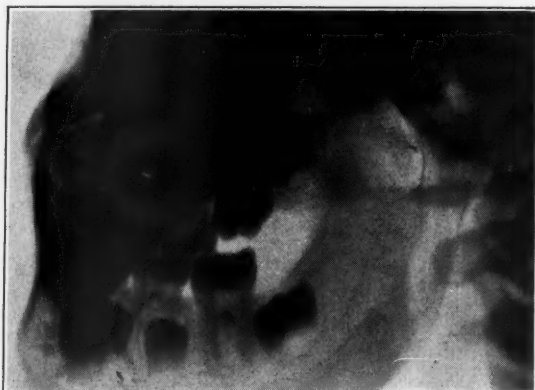


Fig. 169

Roentgenogram of the right side of the mandible taken nearly in the same position as in Fig. 166. It reveals a normal appearance of the ramus, proving that the fragment (head of the condyle) displaced, as shown in Fig. 166, has assumed its normal position, forming a perfect union with the ramus. This roentgenogram was made four months after treatment was begun. (See ¶181). Compare with Fig. 166.



Fig. 170

Photograph taken four months after the patient (Fig. 167) came for the first time. It shows a perfectly normal appearance of the girl's face. (See ¶181.)



Fig. 171

Photograph taken four months after treatment commenced. (See Figs. 165-170.) It reveals a normal occlusion of the posterior teeth on the right side. The anterior teeth do not occlude, due to incomplete eruption. (See ¶181.)



Fig. 172

Photograph taken three years after the injury was sustained, showing the extent to which the patient is able to open and close the mouth. (See Figs. 165-171.) This indicates that there is neither ankylosis nor any facial deformity present. (See ¶181.)

355 East 149th Street.

(To be continued)



[REMOVE THE CAUSE]

Since the diseases that are commonly the result of focal infection are usually due to streptococci, immunity to which is of short duration, not too much should be expected from the use of specific vaccines or serums. They can not take the place of removal of a cause, the focus.

—ROSENOW.

Porcelain Manipulation

A PRACTICAL TECHNIC FOR THE GENERAL PRACTITIONER

By F. R. Felcher, D.D.S., Chicago, Ill.

VIII

TOOTH FORM

Possibly no phase of reconstructive dentistry is of greater importance than the knowledge of the correct forms of the teeth and the individual characteristics pertaining not only to a definite tooth form, but to the peculiarities of type and individuality. By this is meant the type of character of an individual as it presents itself in the teeth.

A knowledge of the proper manipulation and construction of porcelain is incomplete if the operator has not acquired the ability to reproduce those characteristics that make dental ceramics an art. One of the failings among dentists is that tooth form is not sufficiently understood and appreciated. Nature has never given us anything without a specific reason, and when she finds that we no longer have use for a particular something, she removes it by the process of elimination. If in our reconstructive work we fail to reproduce the features as presented in a natural subject, it is very obvious that we are interfering with nature and with natural processes. Pyorrhea is a natural sequence of improperly placed dental restorations which interfere with the normal functions of mastication.

If we are to reproduce nature, we must reproduce her in her entirety. If a bicuspid has two cusps, or if a molar has four or five cusps, we must replace these cusps and include the marginal ridges, as it is our desire to give to patients restorations that will render service without subsequently causing abnormal conditions in the mouth.

Men who are specializing in prophylaxis no doubt appreciate the fact that, in order to correct a pyorrhetic condition, proper scaling and polishing of teeth are only one step toward a cure. The second step is to have the teeth occlude perfectly. All restorative work is then made so that perfect contact points, contour and occlusion are restored. It therefore behooves every ceramist to familiarize himself with a concrete knowledge of tooth forms to such an extent that a mental image of the tooth he is to restore in porcelain is immediately pictured in his mind before he commences work.

It is not the author's intention here to treat the subject of dental anatomy extensively, for knowledge of that may be obtained from books dealing directly with the subject. However, brief mention of a few important points, which may be borne in mind as a guide in the carving of different teeth, should be inserted here.

Before going into this part of the subject, it is suggested that the student in dental ceramics supply himself with some properly prepared roots for the different types of porcelain jacket crown restoration. A



Fig. 7

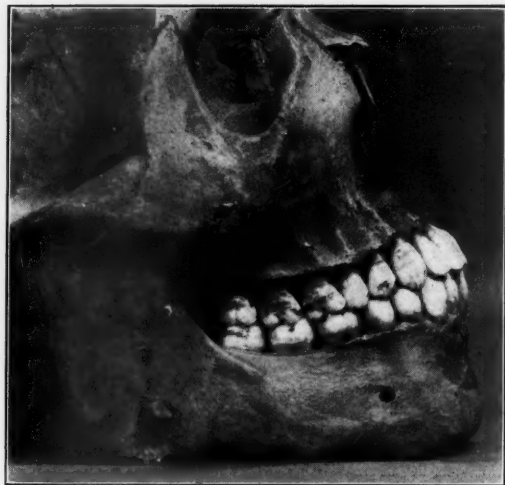


Fig. 8

Figs. 7-8

Teeth in normal occlusion.

good inlay wax is warmed and then forced over the prepared root. The porcelain carver designed by the author will be found a handy instru-

ment for carving wax as well as porcelain. Procure some natural teeth and reproduce them in wax. This method is considered superior to carving teeth from plaster, as it is possible to add to them when too much of the carving material has been removed.

The chief characteristics of a central are fixed in our minds as an incising tooth with a long, somewhat straight mesial line, a shorter rounded distal line, having a decided convex surface extending from below the dento-enamel junction to about the gingival third, and with a more gradual convexity from there to the incisal edge. Lingually there is somewhat the effect of a shovel, with two marginal ridges on the mesial and distal surfaces coming together in a knob or cingulum

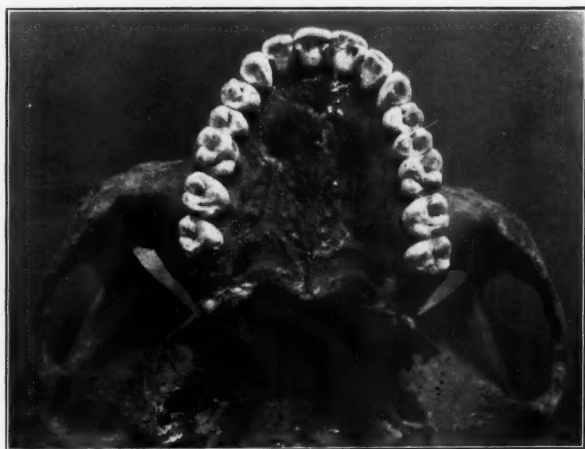


Fig. 9

Typical lingual and occlusal surfaces of maxillary teeth.

near the gingival. This description and the subsequent descriptions are merely crude illustrations to fix a guide in the operator's mind. The finer points may be ascertained from direct study of the teeth or through information found in a good book on dental anatomy.

Cuspids are quickly described as similar to incisors, with the exception of a cusp or point extending mesially, with a more elevated surface like a hill or ridge through the center of the tooth labially. Lingually there is a lingual ridge extending from the point to the cingulum, on which the mandible acts in the lateral movement. In the case of the centrals, as well as the cuspids, the marginal ridges aid in "scooping" the food, so that in passing over the cingulum it is thrown directly onto the palate without packing into the interproximal surfaces or against the gingivae. It must be appreciated, therefore, that if these

ridges are not restored in a jacket crown or inlay, a recession of the gum is likely to follow.

Maxillary bicuspid present a buccal surface similar to the labial surface of a cuspid. Occlusally a mental picture of the letter *H* is somewhat of a guide in beginning the carving of this type of tooth. Occlusally there are a buccal cusp, a lingual cusp, and two marginal ridges mesially and distally, each extending bucco-lingually. On the lingual surface there is a convexity extending from the gingival margin to the occlusal.

In the maxillary molars we find a convex surface buccally, ending



Fig. 10
Occlusal surfaces of mandibular teeth.

in two cusps occlusally. On the occlusal surface there is a mesio-buccal cusp, ending in a pit. A broad mesio-lingual cusp terminates directly in the disto-bucco-occlusal cusp and a disto-lingual cusp of very small size. The lingual surface is also convex, ending in two cusps as described above. Sometimes, as in the first molar, a fifth or additional cusp may be found a little below the mesio-occlusal cusp on the lingual.

In the mandibular bicuspid there are a few different considerations. A mandibular first bicuspid will be found to have one large buccal cusp and a small lingual cusp. We do not always find the lingual cusp in perfect articulation with the other teeth. There is, however, a slight

protecting bulge at the bucco-gingival surface. It then slants upward and inward toward the occlusal, so that the maxillary bicuspid in their articulation may lap over the tooth at the bucco-occlusal surface. This curve is carried so that the occlusal surface at the lingual extends farther out than at the gingival, ending in what might be termed a *lingual bulge*, which acts as a protection by preventing food from falling between the tooth and the tongue in mastication.

This characteristic is true also of mandibular molars. Consider the occlusal surface of a mandibular molar having five buccal cusps and two lingual cusps, as is usually the case in a first molar, and two buccal and two lingual cusps in a second or sometimes third molar. The food is incised or torn by the anterior teeth and then ground primarily by the bicuspid. By this time it is saturated somewhat with saliva and, being passed through the cusps, is forced by the marginal ridges onto the next teeth posteriorly. In the mandible the food is forced by the tongue over the lingual cusps onto the occlusal surface.

I wish to call attention to a practical case with which I had to contend some time ago. A patient came to me with a dowel crown upon a mandibular first bicuspid root. The dentist, not being able to procure a ready-made dowel crown with the characteristic features so essential to the mandibular bicuspid, had substituted a maxillary bicuspid. The occlusion was not normally restored and the buccal and lingual surfaces protruded out of alignment. The case had been in the mouth for about a month when the patient came to me. The gum was badly inflamed, and the patient complained of an uncomfortable area around the tooth. He did not know just what the matter was, but said that it did not feel right. I removed the dowel crown, reproduced the dentin with a casting and then fitted a porcelain jacket crown over that. This jacket crown had the proper characteristics of a mandibular first bicuspid and the occlusion was corrected. Within a very short time the gum became normal and the patient was again comfortable. Many patients are lost for just such reasons, and this is due to the fact that we frequently overlook those features so essential to good dentistry.

To students the author generally illustrates the replacement of an ordinary dowel-crown case. The average dowel crown comes to us with the natural features of the tooth reproduced. Because we cannot change a root, except to prepare it properly for the retention of a dowel crown, the crown must in almost all instances be ground to fit the root and frequently the features required by nature for the protection of the gum tissue are destroyed. The marginal ridges on the lingual surface and the cingulum are quite frequently removed in order to correct the occlusion and are not always replaced. Probably the gingival curve at the labial surface is removed, and even though a perfect fit

between the root and the tooth below the free margin of the gum has been maintained, yet within a very short time a slight recession of the gum will occur, due to the food packing against it during mastication. These conditions may be readily corrected by the addition of lower-fusing porcelains, with which we may restore the proper tooth forms and the marginal ridges. In some instances the cingulum may be restored with stones. Then after the crown is set, we have eliminated what would ordinarily become a source of trouble.

These illustrations will no doubt bear out the argument regarding the value of the proper reproduction of the natural characteristics of the teeth, the lack of which is one of the causes of pyorrhetic conditions in the mouth. How often are fillings and crowns found to have flat surfaces, when with a bit of attention proper cusps and marginal ridges may be restored! Cusps and marginal ridges must be reproduced in every case.

The day of the gold-shell crown with its swaged cusps and straight walls, together with its subsequent malocclusion, is passing. Where a gold crown is necessary as a restoration, the casting method should be employed, restoring the proper labial or lingual curves.

Teeth are classified according to types, which are characteristic of certain faces. These types are accepted according to the newer ideas of tooth classification, the old *temperamental theory* having been discarded, and are classified in three ways, with modifications: Class I, the square type; Class II, the tapering type; Class III, the ovoid type.

In jacket crown work, when an attempt is made to reproduce a tooth, the matter is simple. The operator has before him a model, which gives him an idea as to the proper type and shape of tooth to be reproduced. If, then, in the finished work the type of tooth which correctly harmonizes with the rest of the teeth in the mouth is reproduced, the work is artistic. If it is true that the shades of the teeth vary in the mouth, a porcelain jacket crown when slightly off color will harmonize with the rest of the surrounding teeth, if the same type as the rest of the teeth has been reproduced.

In artificial teeth very few teeth can be procured capable of harmonizing in every mouth. It is then necessary, in order to restore the required type of tooth, that porcelain be applied by the dentist.

Cases have been observed where restorations have been made with dowel crowns perfectly matched as to color, yet they had an artificial appearance, which made them very noticeable. This is caused by one fact—the correct type of teeth has not been reproduced.

In a subsequent article the technic will be taken up whereby porcelain may be added to facings and crowns, which will enable the operator to alter teeth so that correct harmony may be obtained. It is advisable that a large collection of teeth be kept on hand in the office of every

porcelain worker. When building a crown, if you are not absolutely sure as to the form of tooth that is to be reproduced, get a tooth of the type required and copy it, of course making the necessary modifications for the particular case. After a study of such teeth there will become fixed in your mind valuable knowledge as to tooth forms and types. Then a revelation will be opened to you as a dentist. Good dentistry is an inspiration.

7616 Phillips Avenue.

(To be continued)



[JUST WHAT PREVENTION IS]

A word on the status of preventive dentistry. It is impossible to prevent something that has already occurred: we cannot prevent appendicitis by operating on the patient afterward; we cannot prevent the necessity for dental work or dentistry by filling a cavity, however small it may be. To be sure, filling a small cavity prevents a larger one, and filling a large cavity prevents complications with the pulp and subsequent troubles. Prevention in medicine does not mean curing a disease after it has already come into existence; it means, literally, to prevent the original occurrence of the disease by some means active before the disease appears.

—CROSS.

Togo's "Discursions"

*Mr. Editor of Dental Magazine of Somewhat
Silverish Exterior and more or less Golden
Table of Contents.*

Hon. Sir:

Completely desolating month of November slightly relieved by Thanksgiving date inaugurated by Hon. Pilgrim Fathers upon the New England coast on exceedingly slight provocation has again made annual visit.

Dentists Mr. Editor have many causes for thankfulness in A. D. year of 1927 among which may be suggested following items.

1. Enormous quantity of Printers Ink used by tooth paste, tooth-brush and mouth wash Mfr's has caused considerable alarm among all classes of people regarding importance of tooth health as important link in chain sustaining General Health.

2. Alarm when present in sufficient quantity overcomes exaggerated dread of dentists and dentistry and increasing numbers of Hon. Public are seeking for first-class dental services, if procurable.

3. Activities of Hon. H. Ford and General Motors in efforts to make automobiles available to all incomes and development of hard roads by Politicians anxious for percentages wherever procurable have brought large increase in number of patients now present in dental offices from outlying districts with desire for first class dentistry.

4. Increased intelligence on part of Hon. Public makes it easier for conscientious dentist capable of doing so to convince patient of desirability of installing highest grade of work possible.

5. High wages paid and shorter hours of work demanded furnish increased number of populace with money to pay for dental services, as well as time in which to have same installed. Foregoing causes for thankfulness are imposing array Mr. Editor and any profession enjoying such blessings should do everything possible to deserve same. Therefore slightly intelligent question from Japanese side line is "Are they?" Honest reply to said inquiry is "only occasionally" for extremely peculiar condition seems to exist at present between Hon. Public and Dentists who are supplying toothsome needs as called for. In thousands of cases Hon. Public is ready and willing to buy and pay for services of highest grade which vast majority of D.D.S. are at present entirely lacking in skill to produce or courage to recommend. Result—dentistry of 1910 design and standard of excellence continues to be installed in vast majority of cases in suffering jaws of Vox Populi while here and there enthusiastic operator of real skill and courage works himself to untimely obituary notice in futile effort to install highest grade of

work in mouths of all patients from Far and Near who have been told by some one who already had it how good his work really was.

Dentists enjoy peculiar ability to peer accurately into the Future for patients who present for services and tell them with almost deadly accuracy what is going to be result of work already installed or about to be carried out, in matter of five, ten or even twenty years from present date line. But does Hon. Average Dentist do said accurate job of forecasting in his own mind with fearless honesty and then wise up chair victims as to net result as observed? Not to any considerable extent. Mostly teeth of Human Family continue to be patched in most casual and haphazard manner without thought directed intelligently toward future date and consequences.

As a profession Mr. Editor, Dentists are presently neglecting most Golden Opportunities ever known to exist for rendering highest grade services to Enlightened Public who need only slight urging and explanation of various merits of 1927 model Dentistry to become enthusiastically willing to purchase same in whatever quantities necessary.

Let us Give Thanks for our Opportunities Mr. Editor and seek to study with utmost intelligence possible the Delightful two-way benefits of enhanced value of all services rendered to Hon. Public and increased rewards in Personal Bank Account. It can be done!

Hoping you are the same,

Togo.



Principles Relating to Dental Health*

The American Society of Orthodontists subscribes to the following affirmations of items and principles relating to dental health:

Whereas, The correction of malocclusion is primarily a health measure; and

Whereas, The only solution of dental health, both locally and in its relation to general health, lies in the prevention of oral disease; and

Whereas, Dental prevention is effective in inverse ratio to the age of the patient, children's dentistry is the logical field of preventive measures; and

Whereas, The orthodontist needs the complete co-operation of the dentist to insure and maintain dental health before and during orthodontic procedure; and

Whereas, The principles of prevention, listed herewith, have been endorsed by fifteen state dental conventions, three national dental associations, and the Fédération Dentaire Internationale; namely

Proper attention to initial defects;

Particular care and attention to all pits, fissures and grooves before caries appears;

No cavity is too small to fill;

The deciduous teeth should have the same care and attention as the permanent ones, as their maintenance in health is essential to the proper development of adult occlusion; and

Whereas, Disregard of these principles and practices of accepted dental teachings constitutes a transgression of professional obligation to the patient and a serious handicap to orthodontic procedure; therefore be it

Resolved, That this declaration of policy is the unanimous expression of the belief of this organization, whose members are called upon to uphold it in all their relations with the dental profession and the public; and be it further

Resolved, That these resolutions should be displayed in each orthodontic office and a copy sent to the dentist responsible for the care of the patient immediately on the acceptance of a case; and be it further

Resolved, That this action be given publicity in professional journals and copies sent to the secretaries of various state, national and international dental organizations and to dental school associations.

* These resolutions were adopted by The American Society of Orthodontists in annual session, May 2-5, 1927, Chicago, Illinois.

Red Cross Roll Call

The entire dental profession in New York City will be intensively covered in the 1927 Red Cross Roll Call, according to the plan of Dr. Arthur H. Merritt, who, as volunteer chairman of a specially organized dentists' group, is already formulating a comprehensive Roll Call program.

The vast volunteer organization of the metropolis to secure the superlative response throughout the city to the annual membership effort will number representatives of every phase of New York's industrial, mercantile, and professional life. Following the program which has operated with notable results in previous years, the volunteer alignment will be based on the plan of widespread committee groups to carry the Roll Call message into every branch of trade and industry, and by the opening of the Roll Call on Armistice Day it is estimated that approximately 200 such groups will be in action, each under the leadership of an outstanding figure in the field to be covered by an individual group.

Dr. Merritt, who also served as chairman of a similarly organized group in the Roll Call endeavor last year, anticipates even more generous support for the forthcoming appeal and aims at a unanimous enrollment of the personnel throughout his field.

Included in the outstanding metropolitan activities of the Red Cross, for whose adequate maintenance the annual membership invitation is extended to every resident of the city, are the disaster relief and the public health program under which thousands of surgical dressings are supplied each year to local hospitals and which also includes nursing service, first aid, and work in home hygiene and care of the sick. Disabled ex-service men and their dependents are also a large factor in the Red Cross program and activities on their behalf include legal assistance, money loans, and medical attention.



CORRECTION

In the September Questionnaire the University of Tennessee, School of Dental Hygiene, was listed as being located in Nashville. This was an error. It is located in Memphis, Tenn.

DENTAL ECONOMICS

Business Methods*

By W. B. Lee, D.M.D., Eugene, Oregon

If we as dentists are to receive a just and prompt remuneration for the services we render and are to reap a fair return upon the tremendous investment represented, it is necessary to adopt business methods. It is an honorable ambition to wish to make money from our profession, as long as we render value received. When the knowledge of business principles is combined with our labors, our standing in the community is raised, our income is increased, and our practice begins to glow with a new fascination and charm. We recognize more clearly our possibilities and opportunities. We know the happiness found in good work. We realize the satisfaction and pleasure of owning our own homes. We find tranquillity at the sunset of life when we have saved a competency during our productive period. Perhaps you are familiar with Burns's poem:

Gather gold by every wile
That's justified by honor:
Not for to hide it in a hedge,
Nor for a train attendant,
But for the glorious privilege
Of being *independent*.

EDUCATING BY MODELS

Salesmanship is just as necessary for the dentist as for the merchant—more so, I should say, for the dentist is selling a service essential to health. He must convince patients for their own benefit. Models help to educate them to their needs. They indicate the operation required and teach what diligent care must be exercised for future preservation. This point is not stressed enough by the dentist. He often is blamed for a failure that is due entirely to a patient's negligence. We should never assume such responsibilities nor promise unreasonable results. If our models introduce to the patient's eye our conception of their

* Read before the Portland (Oregon) District Dental Society.

needs, the sale is half made. If the picture is not properly presented, it means that we both lose from the delay. Decay, leverage, and the other forces of nature wait for neither of us. It is better to conceive the truth and act upon it than to have it thrust upon us by sad experience.

There is nothing more beautiful than the human tooth. "Pearls beyond price" we call them. With this salutation the tooth models we exhibit to the patient are received not with a shudder of abhorrence but with enthusiasm and interest. Conditions are represented in the models as they actually exist in their mouths. Ofttimes we can point to a definite tooth and say: "Just like yours. This restoration is the one indicated for you." There is no better way to show the difficulties we have to contend with from tooth decay. Models labeled *progressive decay* are of value in educating the patient to the necessity of more vigilance in the care of the teeth and the reason why so many are lost. By the use of models they can more easily grasp the meaning of our words and see what our contentions are in endeavoring to restore their teeth to some semblance of nature.

One of my models has the bicuspid removable, so that the approximal decay is disclosed, and teaches where most decay takes place, why it is so hard to find, and how far it often progresses before being noticed even by the dentist. The value of the x-ray in locating these cavities is explained.

That there is a difference in dental operations is indicated by two sets of amalgam fillings—one of promiscuously extracted teeth showing the poor workmanship found there, the other with real amalgam restorations. We are often asked, "Why do some restorations cost more than others?" This model explains that. Until laymen learn that they can choose their dentist but not their dentistry, these are legitimate questions and must be answered. The models display a progressive advance that is being understood.

A small black box contains gold crowns, gold inlays, good and bad, taken from the mouth. Why one is worth more than the other is readily observed. With removable and fixed bridges upon models their advantages and disadvantages are demonstrated before insertion, and the patient's cooperation is obtained in the choice and in future care for preservation.

We find that if these weak points are properly explained to our patrons, they are forewarned of possible future trouble. For what do we do that is perfect? If the work of the Creator fails, of what avail are our most efficient efforts?

Bottles containing granulomas and cysts have proved of value in defining conditions existing at the apices. After the radiographs hav-

ing rarefied areas have been exhibited, few wish to retain infected teeth with so much visible evidence against them.

Pictures of pyorrhea cases and teeth with adhering tartar prove the damage accomplished, consequently all desire prophylactic treatments.

The models mentioned are made from extracted teeth mounted in plaster to show conditions as found in the mouth and how they should be constructed or restored.

KEEPING RECORDS

There are many ways and means of keeping records, but one card for the whole record has been our final compromise. The work side of the sheet indicates what is to be restored, the estimated cost, and the terms that are made with the patient before any operation is started. With such a perfect understanding between us, we can proceed as professional men and not worry about the financial end.

With a complete record and estimate at hand, any question or difference of understanding may be settled by referring to the record and diagram.



[RESEARCH]

Every research worker must have genius, if we define as genius an infinite capacity for taking pains. He must devote almost unlimited care and attention to even the smallest and apparently most insignificant details of his work, for it is often in little things that error arises. Allied to patience is the stubbornness and determination not to be beaten by the difficulties of the problem until these have been overcome or until it is realized that the problem is insusceptible of solution in the present state of our knowledge.

—BIGGER.

PRACTICAL HINTS

This Department is now being conducted from the office of The Dental Digest. To avoid unnecessary delay, Hints, Questions and Answers should be addressed to Editor Practical Hints, The Dental Digest, 220 West 42d Street, New York, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

Editor, Practical Hints:

A male patient, about 25 years old, came for extraction of a badly broken-down upper left first molar. I got one root out first, but with the other two roots, which were not separated, polypi or abscessed tissue came out with the end of the roots. As he spat, blood came out through his nose, and he said he felt a suction through the tooth socket, which made me think that the antrum was interfered with. I plugged the socket with cotton and told him to remove it the next morning, using a saline solution (NaCl), and afterward to replug and again remove the next morning and continue for about eight days. This I told him to do because he lived far from me in the country district.

It is now eight days and I have not seen him. I should like to know whether that was the best method of procedure, and also what would have happened if no notice had been taken of it.

L. R. N.

ANSWER.—It is not an uncommon thing to find a maxillary first molar penetrating the floor of the maxillary sinus. When such a condition exists, it is our plan to wash the sinus with a mild solution of sodium ricinoleate daily until the washes are perfectly clear. Immediately after the extraction we make a saddle with clasps on the adjoining teeth to cover the opening. This serves the purpose of making the patient more comfortable by excluding the air and safer by keeping out food. If the sinus is not seriously infected, the opening will ordinarily close in a few days.

Under the conditions which you cite you undoubtedly did the best thing.—G. R. WARNER.

Editor, Practical Hints:

What treatment do you advise for swelling of the face following extraction of teeth? Also, for swelling of the face when patients present with a putrescent pulp?

What about hot and cold packs to the face?

A. A. G.

ANSWER.—To prevent swelling of the face following extraction, ice packs should be used immediately after the extraction. This treatment is ordinarily necessary only when there has been a considerable amount of surgical work in connection with the extraction.

Swelling incident to putrescent pulp is usually promptly relieved upon removal of the offending pulp or tooth. Alternating hot and cold packs makes a very good treatment for this condition.—G. R. WARNER.

Editor, Practical Hints:

I have a patient who presented with a brown, dirty-like appearance of the gums. This condition exists on the labial gums of upper and lower jaws in the anterior region. I am very much puzzled as to what it is. I do not believe it is trench mouth, because the gums are not spongy, there are no ulcers, no bleeding nor foul breath.

The patient did not have lues and did not receive any salvarsan injections. He is a man about 25 years old. He works in a local steel mill as an inspector, and before coming to this country he was a farmer. He has been doctoring for several months, complains of a burning sensation over the stomach region, no appetite and some pain on deglutition, after which he throws his food up. I understand that his stomach, etc., have been x-rayed several times, but no pathology is evident.

Do you think this brown appearance on his gums could be due to his long period of medication?

The rest of the gum tissue and also the buccal tissue present a milky-white appearance. His tongue is very white, patchy with fissures. He says his tongue is just like milk in the morning. His throat is slightly red, but the attending physician says it is not bad. His tongue seems to be enlarged, he has a tendency to keep on expectorating and is always tired.

I should appreciate any information you can give me about this case, especially the gums.

A. A. G.

ANSWER.—The condition which you describe does not seem to fit any of the generally well-known pathological conditions of the mouth.

It is possibly some form of chemical poisoning resulting from the work in which he is engaged. The general symptoms described would rather lead one to this view. The milky-like appearance might be and possibly is leukoplakia. If it is leukoplakia, there is nothing to be done, but I suspect that the whole mouth condition is a symptom of his general condition.—G. R. WARNER.

Editor, Practical Hints:

What makes vital teeth that have full shell crowns on them become sensitive to thermal changes or the touch of metal after the crowns have been placed from a week to a year? These are posterior and usually help support a bridge. I do not wish to devitalize.

Can you suggest a remedy for the present situation and how to prevent its recurrence?

G. E. O.

ANSWER.—If you will go over the exposed dentin surfaces of these teeth immediately after they have been prepared for crowns with a concentrated solution of silver nitrate, followed by powdered amalgam on a pellet of cotton to precipitate the silver nitrate, you will find that their sensitiveness, after the crowns have been set, will be greatly reduced.—V. C. SMEDLEY.

Editor, Practical Hints:

I have a lady patient, 55 years old, for whom I made full dentures three years ago. She wears them and masticates food very satisfactorily with them, but after keeping them in her mouth for a few hours complains of her upper lip going to sleep, which becomes so annoying that she has to remove them. Can you offer me a remedy for this case.

E. R. H.

ANSWER.—The periphery of this lady's plate is undoubtedly causing a pressure on the branch of the infraorbital nerve which supplies the lip. If you will reduce the labial border of this plate materially, I think you will find that this interference with normal sensation will be corrected.—V. C. SMEDLEY.

Editor, Practical Hints:

On December 21, 1926, I made a mandibular injection and removed a slightly impacted lower third molar—perfect anesthesia, no after-pain. I saw the patient in about a week and he stated that the prickling sensation in the chin still persisted.

I filled a lower right second molar within the past week and noted that the socket where the third molar had been was perfectly healed and there was no soreness, etc. The sensation in the second molar was normal.

The patient stated that the jaw still felt heavy. I pricked his lower lip slightly and he experienced pain, but he still insists that there is a prickly feeling and a heavy sensation extending to the median line.

What is the probable cause and the probable outcome?

R. C. M.

ANSWER.—You probably injured the inferior dental nerve with the injection. This may happen occasionally either from a pricking or bruising of the nerve trunk with the point of the needle or from a small amount of infection carried in from the mucous membrane or elsewhere by the needle point. From whichever source this may have arisen nature will undoubtedly take care of it, and normal sensation will return anywhere from a few weeks' to two or three years' time.—V. C. SMEDLEY.

Editor, Practical Hints:

A patient, aged 25, is normally healthy. He complains of a throbbing and itching sensation in his four lower incisors and says that each heart pulsation produces pain in this area. He has had a thorough examination at a hospital in Kansas City, Mo. His condition from their data is good.

The only impingement is an unerupted upper third molar. He complains of no pain there and locally no swelling. There is no swelling nor soreness to the two unerupted lower third molars. The pictures indicated no apical granuloma around the lower incisors, but still he complains of the throbbing pain. He says the only relief he can get is from an alcoholic stimulant of some kind.

The teeth have been scaled and the gums are in a healthy state. He has been placed on a strict diet with no good effects.

F. E. M.

ANSWER.—The condition which you describe would seem to be due to irritation of the inferior dental nerve. There is not enough periodontoclasia, there is not enough wear of the incisal surfaces to account for the feelings described. However, traumatic occlusion may play a part in this phase of the condition and should be looked into. There is also the possibility that the malposed mandibular third molars have something to do with it. Malposed teeth, whether impacted or not, have a tendency to cause reflex irritations. I would therefore advise the

removal of the mandibular third molar and the impacted maxillary third molar.—G. R. WARNER.

Editor, Practical Hints:

A woman, aged 44, with all the upper teeth missing except cuspid to cuspid, all the lower missing except cuspid to cuspid and right second molar and second bicuspid, has a bridge supplying the upper right lateral with open-faced crowns as abutments.

The bridge was put in place about the middle of August, 1926. Shortly thereafter she noticed a "click" as she opened and closed her mouth. This has become worse, until now there are two noticeable clicks each time she opens and closes her mouth either in talking or in eating.

Will you kindly give me your idea of the possible cause of the clicking and your suggestion for a cure?

J. B. V.

ANSWER—It probably is safe to assume that the "click" of which you speak in the temporomandibular joint is the objective and subjective evidence of arthritis. Arthritis in the temporomandibular joint is most apt to originate in infection in the mouth or throat. The fact that this seemed to start immediately after the adjustment of a shell crown would lead one to suspect the loss of vitality in that tooth or enough infection from the marginal gingiva to cause the arthritis. It would therefore be wise to check all the teeth very carefully for infection and look into the matter of infected tonsils and infected sinuses.—G. R. WARNER.



Retention of Dentures

When either denture is well retained during speech and displays a fair degree of stability to digital examination when placed in the mouth singly, but is dislodged when used with the opposing denture, do not seek for the fault in impression technique until you have thoroughly checked the various functional relations of the dentures, starting with central occlusion.

TENCH—*Oral Health.*

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of The Dental Digest, 220 West 42nd Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42ND ST., NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

Would you kindly tell me all you can concerning the cause of and remedy for *halitosis*. I do not mean that you should devote pages in detail, but just give plain facts. I have used several home remedies, but nothing seems to help. I am of the opinion that this is caused by some internal disorder or improper diet. H. M., N. Dakota.

ANSWER.—Not being a physician, I do not feel competent to venture a personal opinion as to the cause of halitosis or offensive breath. Quoting from literature on the subject: "Halitosis arises from various causes. It may be due to food particles lodged between the teeth or in neglected cavities, or to uncared-for bridge restorations or unclean artificial dentures. It may be caused by neglect of careful tooth-brushing, by excessive smoking, by a general diseased condition of the mouth, nose or tonsils, or a disordered digestive tract.

If your teeth are found to be in perfect condition following a careful examination by your dentist, and if your nose and throat do not disclose the need of attention after a careful examination by a specialist, then it would be well to look to your digestion. Examination of the various body organs mentioned, by competent authorities, and carefully eliminating possible diseased conditions of these organs should locate the seat of the trouble and permit you to follow a treatment with satisfactory results.

Dear Miss Pierce:

In re X Y Z's letter in your September issue, would suggest that the question of the amount of salary a lady assistant should be paid is, of course, a matter of opinion—upon which dentist and assistant may differ—but I can't conceive how there could be any difference of opinion as to whether or not such an assistant should be paid *during her vacation* while she is *absent* from the office.

How any dentist would not willingly give a faithful assistant at least a two weeks' (the conventional time, I believe) vacation with pay and not start her off with a "gratuity"—a week's pay *or more*—is beyond my comprehension. What kind of a vacation could a girl have if she hasn't a little extra money to *vacate* on? Tell me that!

If a "girl" doesn't earn her salary she should be given a "pink ticket" promptly and her place filled with one who would. A really good and faithful assistant is *probably worth* anywhere from five to ten times what she gets, but it never in the world would do to let her know this.

I have employed "girls" for something like forty years, so, believe me, I ought to *know girls* all right.

Take these "girls" out of our offices tomorrow, and next week there will be fifty-seven thousand dentists applying to the unions for plumbers' and electricians' cards, and that's no joke. All the dental offices will close up. So me for good vacations—real vacations—for the "girls."

C. EDMUND KELLS, D.D.S.

Dear Miss Pierce:

Will you please send me your pamphlets for the names of the different instruments used in the dental office, and any other pamphlets that are necessary in the office.

T. D., Utah.

ANSWER.—From time to time we receive requests for pamphlets and literature, such as above. This department has no pamphlets nor literature for distribution, but if a reader desires to secure information along certain lines or about certain duties in the dental office, we are very glad to publish such information in the *Questionnaire*, in so far as it is possible for us to do so, for the benefit of all our readers.

Regarding the names of the various instruments used in the dental office, we again suggest that dental assistants desiring to learn these names secure a catalogue advertising dental equipment and instruments from the dental supply house with which their respective employer deals. In these catalogues will be found illustrations of dental instru-

ments and equipment with the names of each. By comparing these illustrations with the instruments and equipment in the office and, if in doubt, by asking the doctor, as well as carefully noting the various instruments he uses for each operation, a dental assistant will quickly learn the various types, names and uses of dental instruments.

Regarding other types of instruction of value and necessary for efficient service in an office, we suggest that all professional literature coming into the office be carefully perused for subjects pertaining to the work of the dental assistant, as well as those relating to the history of dentistry, mouth hygiene, diet, health, sanitation, sterilization, bacteriology, anatomy (especially of the head), physiology, office management and practice-building, practical psychology. If there are no books in the doctor's library dealing with these and kindred subjects, you may obtain books from the public library such as are used by high school students. Added information and knowledge may be secured by joining the dental assistants' society in your locality, which gives classes, clinics, lectures, etc., on subjects pertaining to the work of dental assistants.

Dear Miss Pierce:

I greatly enjoy the *Questionnaire* and, although the "hint" that I send may not bear directly on assisting the dentist, it may help a lot.

When cleaning white kid shoes, scrub them with soap and water (white soap) and, while they are drying, dust them with white talcum powder. This method will keep their original softness, and they will not have that "whitened" look that I think is always streaky and looks bad. This makes them look neat and can be used even after they have been whitened with other polishes.

I should like to know how to join the American Dental Assistants Association, and all about it.

I will write more things some other time. I am just brimming over with questions, as I have been an assistant only a short time. I had six months' hospital training, so it helps, but there is so much to learn to assist well.

M. T., New Jersey.

We are sure that the method for cleaning white kid shoes will be appreciated by our readers, for so many of the dental assistants wear them in the office. Thank you!

Regarding the American Dental Assistants Association, we suggest that readers who are interested in becoming members write to the General Secretary, Miss Maude Sharpe, Suite 1202, 8 West 40th Street, New York, N. Y.

October Meeting

OF THE

EDUCATIONAL AND EFFICIENCY SOCIETY FOR DENTAL ASSISTANTS,
FIRST DISTRICT, NEW YORK, INC.

October marked the start of the new season of 1927-28 in the activities of the Educational and Efficiency Society for Dental Assistants, New York. A regular meeting was held on Tuesday evening, October 11, 1927, at the Academy of Medicine, 2 East 103rd Street, New York. The speakers were Dr. Maurice William, who spoke on "The Value of the Assistant in the Dental Office," and Miss Ethel Stowe, who discussed "The Progress of the Business and Professional Woman in a Scientific Age." On Thursday evening, October 20th, the Society, through the Clinic Club, presented table clinics on sterilization, secretarial assistance, chair assistance, x-ray and laboratory procedure, before the Eastern Dental Society at the Allied Dental Council rooms at 425 Lafayette Street, New York. Juliette A. Southard, Founder-President of the American Dental Assistants Association, read a paper on "The Value of a Competent Dental Assistant."

A regular meeting of the Educational and Efficiency Clinic Club was held at the office of Dr. R. Crawford, 8 West 40th Street, New York, on Monday, October 3rd. Plans were formulated for the clinics to be presented in December at the meeting of the First District Dental Society of New York, when members of the Club will give a first aid clinic and a library exhibit, as well as hold a topical discussion on the work of the dental assistant.

The Clinic Club meets regularly on the third Monday of each month, September to May, inclusive, and has as its purpose the study of the various phases of dental assisting and, in an interchange of ideas and discussion, to evolve newer and more efficient methods of office management within the scope of the assistant's work.

The Society meets regularly on the second Tuesday evening of each month, October to May, inclusive, at the Academy of Medicine, New York. A cordial welcome is extended to the members of the dental profession and to dental assistants.





EXTRACTIONS



No Literature can have a long continuance if not diversified with humor—ADDISON

Only an optimist would attempt to pick a bone with a vegetarian.

Never argue with a fool. Listeners may not know which is which.

Scientists date man's origin a million years back, but who knows when ketchup was first poured on baked beans?

Some people go right on spending money for beefsteaks and things when they haven't got a car to their names.

Anybody who "saved up for a rainy day" this year, ought to be about broke now.

The sweet young flapper was saying her prayers: "Dear Lord," she cooed, "I don't ask anything for myself, but please give Mother a son-in-law."

A well-known Eastern appendicitis expert has a dog of which he thinks a great deal, which has a lop-sided walk. A friend asked the doctor on one occasion the cause of this.

"Why," was the reply, "he's got appendicitis."

"Then why don't you operate on him?" queried the caller.

"What, operate on that dog! Why, that dog's worth a hundred dollars."

The new Federal Prohibition Administrator will not permit his agents to sample liquor sold in New York. His men have as much right to live as anybody.

We were recently shown a bill that was presented by a lawyer to his client, which takes the prize for "nerve." Several items were tabulated and the cost of each set down, the last being as follows: "For waking up in the nighttime and thinking of your case, \$100.00."

This is the month that brings the day on which the proud, strutting hero of the barnyard lies upside down on your table minus his gobble!

The pedestrian, taking his own time crossing the street, glared at the motorist who was impatiently honking to hurry him up. The ped accelerated his motion not a jot. "I do not choose to run," he said, in now historic phraseology.

Hubby was proudly exhibiting to his young wife his day's catch.

"Aren't they beauties?" she enthused. "But, dear, I've been so anxious for the past hour."

"Foolish child!" he said, caressingly, "why, what could have happened to me?"

"Oh, I didn't worry about you, dear," she replied, "but it grew so late I was afraid before you got back to town all the fish stores would be closed."

A chap from Kansas who visited New York recently told his friends back home that he got his double chin sunburnt looking up at our high buildings.

In fifty years from now every human being will have a vast amount of leisure on his hands. If once the atom is split, there will be no need for coal, gas, electric light, steam or anything else like that. We will be able to run a train from London to Edinburgh for half a penny, and to light the whole of London or New York for less than one single penny. Now you tell one.

(Pretty Saleslady)—Don't you want a talking machine in your home?

(A Bachelor)—My dear, this is so sudden!

You can't beat Californians for self advertising. A resident of Los Angeles gives us the latest example of grabbing off some of the glory of Lindy's achievement. He claims he raised the pig from which the ham sandwiches were made that Lindy took on his voyage.

Carveth Wells, an explorer, is said to have discovered many strange creatures in the Malay peninsula, among which are tree climbing fish, monkeys that brush their teeth and birds that sleep upside down.

Oh, merchant in the hour of e e e,
If on this paper you should c c c,
And look for something to ap p p p
Your yearning for greenback v v v,
Take our advice and be y y y,
Go straight ahead and advert i i i.
You'll find the project of some u u u,
Neglect can offer no ex q q q,
Be wise at once, prolong your d a a a,
A silent business soon de k k k.

FUTURE EVENTS

A regular meeting of the EDUCATIONAL AND EFFICIENCY SOCIETY FOR DENTAL ASSISTANTS, First District, New York, will be held on Tuesday, November 15, at 8 p. m., at the Academy of Medicine, 2 East 103rd Street, New York. Dr. Alfred Owre, Dean of the Columbia Dental School, will speak on "Efficiency." There will be a short talk by Miss Iris Vorel, astrologer. Members of the dental profession and dental assistants are cordially welcome.

THE CONNECTICUT DENTAL COMMISSION will meet at Hartford, Conn., November 15-17, 1927, to examine applicants for license to practice dentistry and dental hygiene, and to transact any other business proper to come before it. For further information, apply to

ARTHUR B. HOLMES, Recorder,
80 Central Avenue, Waterbury, Conn.

FIRST DISTRICT DENTAL SOCIETY, STATE OF NEW YORK announces the third annual BETTER DENTISTRY MEETING to be held at the Hotel Pennsylvania, New York City, on December 5-7, 1927.

The meeting will follow the high standard set by its predecessors. Essayists and clinicians of international reputation will participate in the program. The group clinics and the topic discussions which have been so popular in the past will be elaborated upon with the object of enabling those attending to derive the greatest benefit from the meeting.

A testimonial banquet to WILLIAM DWIGHT TRACY, on the evening of December 6th, will be an important feature of the evening. Registration for the lectures and clinics should be forwarded at an early date.

For further information and registration blanks, address the General Secretary, Edith M. Davies, Academy of Medicine, 2 East 103rd Street, New York City.

THE IOWA STATE BOARD OF DENTAL EXAMINERS will meet at the State University of Iowa College of Dentistry, Iowa City, Iowa, December 12-13-14-15, 1927, at 9 A. M., for the purpose of examining applicants for a license to practice dentistry in Iowa. An examination for dental hygienists will be given.

For further information and application blanks address the State Department of Health, Capitol Building, Des Moines, Iowa.

All papers and credentials must be filed with the Department at least fifteen days prior to date of examination.

THE MINNESOTA STATE BOARD OF DENTAL EXAMINERS will hold its next examination at the College of Dentistry, University of Minnesota, Minneapolis, December 12-17, 1927. Applications must be in the hands of the Secretary not later than December 1st.

F. E. COBB, *Secretary*,
601 Donaldson Building,
Minneapolis, Minn.

THE TEXAS STATE BOARD OF DENTAL EXAMINERS will hold its next examination in Houston, Texas, at Texas Dental College, beginning December 15, 1927.

The practical examination consists of one gold foil filling, one amalgam filling, and a treatment such as extirpation of pulp, extraction of tooth, or cleaning teeth. Practical prosthetic models for a full upper and lower denture must be furnished by the applicant, together with an anatomical articulator, and the work continued to the point of readiness for investing. One Richmond crown and one gold shell crown shall be constructed on a natural root fitted into a plaster model, roots prepared and crown constructed under the observation of the examiner.

The examination fee is \$25.00 and must accompany all applications. For further information address

MAXWELL C. MURPHY, D.D.S.,
City National Bank Bldg.,
Temple, Texas.

THE ALPHA OMEGA FRATERNITY will hold its twentieth annual convention at the Southern Hotel, Baltimore, Md., December 25-27, 1927. The Supreme Scribe is anxious to obtain the correct address, chapter and class year of all fraters.

ALVIN H. BERMAN, *Supreme Chancellor*,
601 North Gay Street, Baltimore, Md.
A. M. FLASCHNER, *Supreme Scribe*,
419 Boylston Street, Boston, Mass.

The next meeting of the DELAWARE BOARD OF DENTAL EXAMINERS will be held in the Municipal Building, Tenth and King Streets, Wilmington, January 18-19, 1928, 9 a. m. to 5 p. m.

For further information, address

W. S. P. COMBS, *Secretary*,
Middletown, Delaware.

THE CHICAGO DENTAL SOCIETY will hold its 1928 annual meeting and clinic at the Drake Hotel, Chicago, January 24-28. This year's feature will be a three full-day meeting as compared with the two and a half day meeting heretofore.

An excellent program is assured by the chairman of the Program Committee, Arthur D. Black.

HUGO G. FISHER, *Secretary*.

THE AMERICAN ASSOCIATION OF DENTAL SCHOOLS will hold its fifth annual meeting at the Mayflower, Washington, D.C., March 26-28, 1928.

DeLos L. Hill, Secretary,
1206 Medical Arts Building, Atlanta, Ga.

THE AMERICAN SOCIETY OF ORTHODONTISTS will hold its next annual meeting at Hotel Statler, Buffalo, N. Y., April 30-May 3, 1928. Members in good standing in the American Dental Association are cordially invited to attend.

WALTER H. ELLIS, President,
CHARLES R. BAKER, Sec'y-Treas.,
708 Church Street, Evanston, Ill.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its 60th annual meeting at Syracuse, N. Y., May 16-18, 1928.

A cordial invitation to attend is extended to all ethical dentists who are members of State Societies. The Society also bids all ethical Canadian dentists a very cordial welcome.

For information with reference to literary exercises, clinics, etc., apply to Dr. A. P. Burkhart, Secretary, 57 East Genesee Street, Auburn, N. Y.



STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS, OF AUGUST 24, 1912

OF THE DENTAL DIGEST
at New York, N. Y.

Published monthly
for October 1, 1927.

State of New York, } ss.:
County of New York, }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Seeley Vander Veer, who, having been duly sworn according to law, deposes and says that he is the Assistant Secretary of the Dentists' Supply Co. of New York, Publishers of THE DENTAL DIGEST, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

| NAME OF | POST OFFICE ADDRESS |
|--|---|
| Publisher, THE DENTISTS' SUPPLY CO. OF NEW YORK | 220 West 42nd St., New York, N. Y. |
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| Business Manager, L. W. DUNHAM | New Rochelle, N. Y. |
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THE AMALGAMATED DENTAL COMPANY, LTD., is a corporation organized under the laws of England, with an authorized capital stock of £2,850,000, ownership of which is scattered over a considerable part of Europe and includes a long list of names unknown to us, and probably a number of banks and other corporations.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

THE DENTISTS' SUPPLY COMPANY OF NEW YORK,

SEELEY VANDER VEER, Asst. Sec'y.

Sworn to and subscribed before me this 25th day of September, 1927.

[SEAL]

EMELIE S. SCHOPP

Notary Public, Westchester County

Certificate filed in N. Y. County

Clerk's No. 265; Register's No. 9286— My commission expires March 30, 1929.